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THE PRESENT POSITION OF LOGICAL THEORY.

THE remarkable fact in the intellectual life of to-day is the contradiction in which it is entangled. On one hand we have an enormous development of science, both in specialisation of method and accumulation of material; its extension and thorough-going application to all ranges of experience. What we should expect from such a movement, would seem to be confidence of intelligence in itself; and a corresponding organisation of knowledge, giving some guide and support to life. The strange thing is that instead of this we have, probably, the greatest apparent disorganisation of authority as to intellectual matters that the world has ever seen; while the prevalent attitude and creed of scientific men is philosophic agnosticism, or disbelief in their own method when it comes to fundamental matters. Such a typical representative of modern science as Mr. Huxley virtually laughs to scorn the suggestion of Mr. Frederic Harrison that science should or could become so organised as to give any support, any authoritative stay, to life.

Now I do not intend to discuss this apparent contradiction. It seems to me obvious enough that the contradiction is due to the fact that science has got far enough along so that its negative attitude towards previous codes of life is evident, while its own positive principle of reconstruction is not yet evident. But without urging this view upon the reader, I wish to ask how and where in the prevailing confusion logical theory, as a synopsis of the methods and

typical forms of intelligence, stands. Logical theory at once reflects and transforms the existing status of matters intellectual at any period. It reflects it, for logical theory is only the express, the overt consciousness on the part of intelligence of its own attitude, prevailing spirit. It transforms it, because this express consciousness makes intelligence know where it stands, makes it aware of its strength and of its weakness, and by defining it to itself forces it to take up a new and more adequate place.

It is obvious, then, that as the prevailing influence in the intellectual world to-day is science, so the prevailing influence in logical theory must be the endeavor to account for, to justify, or at least to reckon with this scientific spirit. And yet if there is such confusion as we have indicated, then there is also manifested some chaos in logical theory, as to the true nature and method of science. Were it otherwise, were there at present a logical theory adequate to the specific and detailed practical results of science, science and scientific men would be conscious of themselves, and would be confident in their work and attitude.

The especial problem of logic, as the theory of scientific method, is the relation of fact and thought to each other, of reality and thought. It is, however, differentiated from the metaphysical theory of knowledge. Logic does not inquire into the ultimate *meaning* of fact and thought, nor into their *ultimate* relations to one another. It simply takes them from the attitude of science itself, its business being, not the justification nor refutation of this attitude, but its development into explicit doctrine. Fact means to logic no more, but certainly no less, than it means to the special sciences: it is the subject-matter under investigation, under consideration; it is that which we are trying to make out. Thought too means to logic what it means to science: method. It is the attitude and form which intelligence takes in reference to fact—to its subject-matter, whether in inquiry, experiment, calculation, or statement.

Logic, then, would have for its essential problem the consideration of the various typical methods and guiding principles which thought assumes in its effort to detect, master, and report fact. It is presupposed here that there is some sort of fruitful and intrinsic

connection of fact and thought; that thinking, in short, is nothing but the fact in its process of translation from brute impression to lucent meaning.

But the moment such a presupposition is stated, ninety-nine persons out of a hundred think that we have plunged, *ex abrupto*, from the certainty of science into the cloudland of metaphysic. And yet just this conception of the relation of thought (method) to fact (subject-matter) is taken for granted in every scientific investigation and conclusion. Here, then, we have in outline the present position of logic. It is that any attempt to state, in general, or to work out, in detail, the principle of the intrinsic and fruitful relation of fact and thought which science, without conscious reflection, constantly employs in practice, seems "metaphysical" or even absurd. Why is this? The answer to this question will give the filling-up of the outline just presented.

The chief cause is that superstition which still holds enthralled so much of modern thought—I mean formal logic. And if this seems like applying a hard name to what, at best and at worst, is only an intellectual gymnastic, I can only say that formal logic seems to me to be, at present, *fons et origo malorum* in philosophy. It is true enough that nobody now takes the technical subject of formal logic very seriously—unless here and there some belated "professor." It is true that it is generally relegated to the position of a subject which, for some unclear reason, is regarded as "disciplinary" in a young man's education; just as certain other branches are regarded as elegant accomplishments in a young woman's finishing. But while the subject itself as a doctrine or science hardly ranks very high, the conception of thought which is at the bottom of formal logic still dominates the *Zeitgeist*, and regulates the doctrine and the method of all those who draw their inspiration from the *Zeitgeist*. Any book of formal logic will tell us what this conception of thought is: that thought is a faculty or an entity existing in the mind, apart from facts, and that it has its own fixed forms, with which facts have nothing to do—except in so far as they pass under the yoke. Jevons puts it this way: "Just as we thus familiarly recognise the difference of form and substance in common

tangible things, so we may observe in logic, that the form of an argument is one thing, quite distinct from the various subjects or matter which may be treated in that form." *

Professor Stock varies the good old tune in this way: "In every act of thought we may distinguish two things—(1) the object thought about, (2) the way in which the mind thinks of it. The first is called the Matter; the second the Form of Thought. Now formal . . . logic is concerned only with the way in which the mind thinks, and has nothing to do with the particular objects thought about." †

It is assumed, in fine, that thought has a nature of its own independent of facts or subject-matter; that this thought, *per se*, has certain forms, and that these forms are not forms which the facts themselves take, varying with the facts, but are rigid frames, into which the facts are to be set.

Now all of this conception—the notion that the mind has a faculty of thought apart from things, the notion that this faculty is constructed, in and of itself, with a fixed framework, the notion that thinking is the imposing of this fixed framework on some unyielding matter called particular objects, or facts—all of this conception appears to me as highly scholastic, as the last struggle of mediævalism to hold thought in subjection to authority. Nothing is more surprising than the fact that while it is fashionable to reject, with great scorn, all the results and special methods of scholasticism, its foundation-stone should still be accepted as the corner-stone of the edifice of modern doctrine. It is still more surprising when we reflect that the foundation-stone is coherent only with the mediæval superstructure. The scholastics when they held that the method of thought was a faculty pursuing its own method apart from the course of things, were at least consistent. They did not conceive that thought was free, that intelligence had rights, nor that there was possible science independent of data authoritatively laid down. Really believing what they professed,—that thought was something *in se*,—

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* Jevons, *Elementary Lessons in Logic*, p. 5.

† Stock, *Deductive Logic*, p. 3.

they held that it must be supplied with a fixed body of dogmatic fact, from tradition, from revelation—from external authority. They held that thought in its workings is confined to extracting from this dogmatic body of fact what is already contained in it, and to re-arranging the material and its implications. To examine the *material*, to test its truth; to suppose that intelligence could cut loose from this body of authority and go straight to nature, to history itself, to find the truth; to build up a free and independent science—to this point of incoherency mediæval scholasticism never attained. To proclaim the freedom of thought, the rejection of all external authority, the right and the power of thought to get at truth for itself, and yet continue to define thought as a faculty apart from fact, was reserved for modern enlightenment! And were it not somewhat out of my present scope, I should like to show that modern culture is thus a prepared victim for the skilful dialectician of the reactionary army. If the modern *Zeitgeist* does not fall a prey to the cohorts of the army of external authority, it is not because it has any recognised methods or any recognised criterion by which it can justify its raising the "banner of the free spirit." It is simply the obstinate bulwark of outer fact, built up piecemeal by science, that protects it.

The two main forces, which have been at work against the formulæ of formal logic, are "inductive" or empirical logic on one side, and the so-called "transcendental" logic, on the other. Of these two, the influence of inductive logic in sapping in practical fashion and popular results the authority of syllogistic logic has undoubtedly been much the greater. I propose, briefly, to give certain reasons for holding, however, that the inductive logic does not furnish us with the needed theory of the relation of thought and fact. To show this adequately would demand the criticism of inductive logic in the detail of its methods, in order to show where it comes short. As this is impossible, I shall now confine myself to a couple of general considerations.

To begin with, then, the empirical logic virtually continues the conception of thought as in itself empty and formal which characterises scholastic logic. It thus has really no theory which differ-

entiates it, as regards the nature of thought itself, from formal logic. I cannot see, for example, what quarrel the most stringent upholder of formal logic can have with Mill as to the latter's theory of the syllogism. Mill's theory is virtually simply a theory regarding the formation of the major premiss—regarding the process by which we formulate the statement that All *S* is *P*. Now, if we once accept the syllogistic position, this process lies outside the scope and problem of formal logic. It is not an affair of what Jevons calls the form of argument at all, but simply of the matter, the particular facts which make the filling of the argument. I do not see that it is any part of the business of formal logic to tell where the major premiss comes from, nor how it is got. And, on the other hand, when it comes to the manipulation of the data contained in the premiss, Mill must fall back upon the syllogistic logic. Mill's theory, so far as the thought-element is concerned, presupposes the syllogistic theory. And if this theory, on its side, does not presuppose something like Mill's inductive theory, it is simply because the logician, as a *philosopher*, may prefer "intuitionalism" to "empiricism." He may hold, that is, that the content of some major premisses is given by direct "intuition" rather than gathered from experience. But in either case, this consideration of the source of the content of the premiss belongs not to formal logic, but to metaphysics.

If, then, the theory of the syllogism is incorrect in its assumptions as to the relation of fact and thought, the inductive logic must be similarly in error. Its great advantage over the old scholastic logic lies not in its logic as such, but in something back of the logic—in its account of the derivation of the material of judgment. Whatever the defects of Locke's or Mill's account of experience, any theory which somehow presupposes a first-hand contact of mind and fact (though it be only in isolated, atomic sensations) is surely preferable to a theory which falls back on tradition, or on the delivery of dogma irresponsible to any intellectual criticism. But in its account of the derivation of the material of judgment, inductive logic is still hampered by the scholastic conception of thought. Thought, being confined to the rigid framework in which the material is manipulated after being obtained, is excluded from all share in

the gathering of material. The result is that this material, having no intrinsic thought-side, shrinks into a more or less accidental association of more or less shifting and transitory mental states.

I shall not stop to argue that, on this ground, the "inductive" logic deprives science of its most distinctive scientific features—the permanence and objectivity of its truths. I think no one can deny that there is at least an *apparent* gap between the actual results of concrete science and these results as they stand after the touch of the inductive logic—that the necessity and generality of science seem rather to have been explained away, than explained. I think most of the inductive logicians themselves (while endeavoring to account for this apparent necessity as generated through association) would admit that something of science *seems*, at least, to have been lost, and that the great reason for putting-up with this loss is that the inductive logic is the sole alternative to a dogmatic intuitionalism and to arbitrary spinning-out of *a priori* concepts.

Certainly as long as thought is conceived after the fashion of syllogistic logic, as a scheme furnished and fixed in itself, apart from reality, so long scientific men must protest against allowing thought any part or lot in scientific procedure. So long some such *modus operandi* as that given by Mill must be resorted to in order to explain scientific methods and results. But, on the other hand, if the scholastic idea of thought as this something having its character apart from fact is once given up, the cause which at present cramps the logic of science into the logic of sensationalism and empiricism is also given up. And this brings us to the other point in general regarding the inductive or empirical logic. It is not strictly a logic at all but a metaphysic. It does not begin with the fact of science, the fact of the fruitful inquiry into fact by intelligence, at all. It does not, starting from this fact analyse the various methods and types which thought must take upon itself in order to maintain this fruitful inquiry. On the contrary, it begins with sensations, and endeavors by a theory of knowledge on the basis of sensationalism to build up the structure of cognition, ordinary and scientific. I am not concerned here with the truth of sensationalism as a metaphysical theory of knowledge, nor with the adequacy of the notion of

sensation advanced by Mill. It is enough from the logical point of view to point out that such a theory is not logic—that logic does not deal with something *back* of the fact of science, but with the analysis of scientific method as such. And is it forcing matters to indicate that this retreat from logic to metaphysic is also caused by the syllogistic notion of thought? Formal thought, with its formulæ for simply unfolding a given material, is of no use in science. There is, therefore, the need of some machinery to take the place of thought. And this is found in sensation and in "experience" according to the peculiar notion of experience current in the inductive logic.

In a word, then (without attempting to show the insufficiency of inductive logic as the theory of science by reference to its treatment of specific points) inductive logic does not meet our needs because it is not a free, unprejudiced inquiry into the special forms and methods of science, starting from the actual sciences themselves. It is founded and built up with constant reference to the scholastic notion of thought. Where it is not affected positively by it, it is still affected by its reaction from it. Instead of denying once for all validity or even sense to the notion of thinking as a special, apart process, and then beginning a free, unhampered examination with an eye single to the fact of science itself, it retains this conception of thought as valid in a certain department, and then sets out to find something to supply the gap in another department. And thus we have the usual division of inductive and deductive logic, inductive being interpreted as empirical and particular, deductive as syllogistic and formal. They are counterpart and correlative theories, the two sides of the notion of the separateness of fact and thought; they stand and fall together.

"Transcendental" logic, while usually conceived as utterly opposed in spirit and in results to inductive logic, has yet been one with it in endeavoring to abolish formal logic as the sufficient method and criterion of scientific truth. I say this although well aware that inductive logic is usually conceived as specifically "scientific," while the transcendental movement is regarded as the especial foe of science—as a belated attempt to restore an *a priori* scholasticism,

and to find a scheme for evolving truth out of pure thought. This is because when the "transcendental" school talks of thought, of the synthetic and objective character of thought, of the possibility of attaining absolute truth through thought, and of the ontological value of thought, it is understood as meaning thought in the old, scholastic sense, a process apart and fixed in itself, and yet somehow evolving truth out of its own inner being, out of its own enclosed ruminations. But on the contrary, the very meaning of "transcendentalism" is not only that it is impossible to get valid truth from the evolution of thought in the scholastic sense, but that there is no such thought at all. Processes of intelligence which have their nature fixed in themselves, apart from fact and having to be externally applied to fact, are pure myths to his school. Types of thought are simply the various forms which reality progressively takes as it is progressively mastered as to its meaning,—that is, understood. Methods of thought are simply the various active attitudes into which intelligence puts itself in order to detect and grasp the fact. Instead of rigid moulds, they are flexible adaptations. Methods of thought fit fact more closely and responsively than a worn glove fits the hand. They are only the ideal evolution *of* the fact,—and by "ideal" is here meant simply the evolution of fact into meaning.

If this is a fair description of what the "transcendental" school means by thought, it is evident that it is a co-worker with the spirit and intent of "inductive" logic. Its sole attempt is to get hold of and report the presupposition and rationale of science; its practical aim is to lay bare and exhibit the method of science so that the true seat of authority—that is, the authority, the *backing*, of truth—shall be forever manifest. It has simply gone a step further than "inductive" logic, and thrown overboard once for all the scholastic idea of thought. This has enabled it to start anew, and to form its theory of thought simply by following the principles of the actual processes by which man has, thus far in history, discovered and possessed fact.

I shall not attempt here any defence of the "transcendental" logic; I shall not even attempt to show that the interpretation of it

which I have given above is correct. It must go, for the present, simply as my individual understanding of the matter. Simply taking this view of "transcendental" logic for granted, I wish, in order to complete our notion of the present position of logic, to consider the reasons which have thus far prevented, say, the Hegelian logic from getting any popular hold—from getting recognition from scientific men as, at least in principle, a fair statement of their own basic presupposition and method.

The first of these reasons is that the popular comprehension of the "transcendental" movement is arrested at Kant and has never gone on to Hegel. Hegel, it is true, overshadowed Kant entirely for a considerable period. But the Hegelian régime was partly pyrotechnical rather than scientific in character; and, partly, so far as it was scientific, it exhausted itself in stimluating various detailed scientific movements—as in the history of politics, religion, art, etc. In these lines, if we trust even to those who have no faith in the Hegelian method or principles, the movement found some practical excuse for being. But the result of the case was—and its present status is—that because the principle of Hegel was, for the time, lost either in display of dialectical fireworks, or in application to specific subjects, the principle itself has never met with any *general* investigation. The immense amount of labor spent on Kant during the past twenty years has made method and principle familiar, if not acceptable, to the body of men calling themselves educated. And thus, so far as its outcome is concerned, the transcendental movement still halts with Kant.

Now, at the expense of seeming to plunge myself deeper in absurdity than I have already gone, I must say that the Kantian principle is by far more "transcendental" in the usual interpretation of that term—more *a priori*, more given to emphasising some special function of some special thought-power—than the Hegelian. As against the usual opinion that while some compromise between science and Kant is possible, the scientific spirit and Hegel are at antipodes, it appears to me that it is Kant who does violence to science, while Hegel (I speak of his essential method and not of any particular result) is the quintessence of the scientific spirit. Let me

endeavor to give some reasons for this belief. Kant starts from the accepted scholastic conception of thought. Kant never dreams, for a moment, of questioning the existence of a special faculty of thought with its own peculiar and fixed forms. He states and restates that thought in itself exists apart from fact and occupies itself with fact given to it from without. Kant, it is true, gives the death-blow to scholasticism by pointing out that such a faculty of thought is purely analytic—that it simply unfolds the material given, whether that material be true or false, having no method of arriving at truth, and no test for determining truth. This fact once clearly recognised, dogmatic rationalism, or the attempt to get truth from the "logical" analysis of concepts was forever destroyed. The way was opened for an independent examination of the actual method of science.

But while Kant revealed once for all the impossibility of getting truth, of laying hold of reality, by the scholastic method, he still retained that conception of thought. He denied, not its existence, but its worth as relates to truth. What was the result? Just this: when he came to his examination (criticism) of knowledge, it fell apart at once into two separate factors, an *a priori* and *a posteriori*. For if Kant finds, as against the dogmatic rationalist, that formal thought cannot give knowledge, he also finds, as against the sceptical empiricist, that unrelated sensation cannot give knowledge. Here too, instead of denying, *in toto*, the existence of unrelated sensation, he contented himself with denying its functional value for knowledge. Unrelated sensation and formal thought are simply the complementary halves of each other. Admit the one, and the other is its necessary counterpart.

Kant must now piece together his two separated factors. Sensation, unrelated manifold of sensation, is *there*, thought, isolated, analytic thought, is *here*. Neither is knowledge in itself. What more natural than to put them together, and hold that knowledge is the union of a matter or stuff, of sensations, atomic in themselves, on one hand, and a form, or regulating principle of thought, empty in itself, on the other? We have two elements, both existing in isolation, and yet both useless for all purposes of knowledge. Combine them, and presto, there is science.

Such a "transcendentalism" as this may well stick in the crop of scientific men. For consider what is involved in it: an *a priori* factor, on one side, and an *a posteriori*, on the other. Kant, from one point of view, seems thus to have simply combined the weaknesses of empiricism and rationalism. He still continues to talk of experience itself as particular and contingent, and denies that it gives a basis for any universal laws. Aside from his effort in the "Kritik der Urtheilskraft" to overcome his original separation, special scientific laws are to him only more or less extensive generalisations from experience—as much so to him as to Locke, or Mill. Scientific men indeed, have accustomed themselves to this derogation of their own methods and results, and, as "inductive" logicians, indulge in it quite freely themselves. But an *a priori* element, supplied by a thought fixed and separate, scientific men cannot do away with. Nor do I know any reason why they should.

It is coming short, in my opinion, of the full stature of science to treat it as a quantitive and varying generalisation of contingent particulars, but this, at least, leaves what science there is free and unhindered. But *a priori* elements supplied from outside the fact itself, *a priori* elements somehow entering into the fact from without and controlling it—this is to give up the very spirit of science. For if science means anything, it is that our ideas, our judgments may in some degree reflect and report the fact itself. Science means, on one hand, that thought is free to attack and get hold of its subject-matter, and, on the other, that fact is free to break through into thought; free to impress itself—or rather to express itself—in intelligence without vitiation or deflection. Scientific men are true to the instinct of the scientific spirit in fighting shy of a distinct *a priori* factor supplied to fact from the mind. Apriorism of this sort must seem like an effort to cramp the freedom of intelligence and of fact, to bring them under the yoke of fixed, external forms.

Now in Hegel there is no such conception of thought and of *a priori*, as is found in Kant. Kant formulated the conception of thought as objective, but he interpreted this as meaning that thought subjective in itself *becomes* objective when synthetic of a given sense-manifold. When Hegel calls thought objective he means just what

he says: that there is no special, apart faculty of thought belonging to and operated by a mind existing separate from the outer world. What Hegel means by objective thought is the meaning, the significance of the fact itself; and by methods of thought he understands simply the processes in which this meaning of fact is evolved.

There has been, of late, considerable discussion of the place and function of "relations" in knowledge. This discussion in English speculation, at least, tends to turn largely about Thomas Hill Green's reconstruction of Kantianism. I consider it unfortunate that this discussion has taken the form of a debate between empiricism and Kantianism. The question of knowledge has thus come to be whether or not certain relations are supplied by thought to sensations in order to make an orderly whole out of the latter, chaotic in themselves. Now when Hegel talks of relations of thought (not that he makes much use of just this term) he means no such separate forms. Relations of thought are, to Hegel, the typical forms of meaning which the subject-matter takes in its various progressive stages of being understood. And this is what *a priori* means from a Hegelian standpoint. It is not some element *in* knowledge; some addition of thought to experience. It is experience itself in its skeleton, in the main features of its framework.

"Refutations" of Hegel, then, which attempt to show that "thought" in itself is empty, that it waits for content from experience, that it cannot by any manipulation evolve truth out of itself are, if taken as having relevance to Hegel, simply meaningless. Hegel begins where these arguers leave off. Accepting all that they can say, he goes one step further, and denies that there is any such "thought" at all anywhere in existence. The question of the relations or "categories of thought" is just the question of the broad and main aspects of fact as that fact comes to be understood.

For example, Kant would prove the *a priori* character and validity of the principle of causation by showing that without it science is impossible, that it helps "make experience." Now, in terms, Hegel's justification of this relation would be the same; he too would show that the fabric of experience implies and demands the causal relation. But in Kant's case, the justification of the

principle of causality by reference to the possibility of experience means that thought must continually inject this principle *into* experience to keep it from disappearing: that experience must be constantly braced and reinforced by the synthetic action of thought or it will collapse. In short, the need of experience for this principle of causation means its need for a certain support outside itself. But Hegel's demonstration of the validity of the causal principle is simply pointing out that the whole supports the part, while the part helps make the whole. That is to say, Hegel's reference is not to some outside action of thought in maintaining fact as an object of knowledge; it is to the entire structure of fact itself. His contention is simply that the structure of fact itself, of the subject-matter of knowledge, is such that in one of its phases it presents necessarily the aspect of causality. And if this word "necessarily" gives pause, it must be remembered what the source of this necessity is. It does *not* lie in the principle of causation *per se;* it lies in the whole fact, the whole subject-matter of knowledge. It is the same sort of necessity as when we say that a complete man *must* have an eye; i. e., it is the nature of the human organism to develop and sustain this organ, while the organ, in turn, contributes to and thus helps constitute the organism.

It is then evident that the question upon which the "refutation" of Hegel turns is not in showing that formal "thought" cannot give birth to truth except through the fructifying touch of experience. The question is simply whether fact—the subject-matter of knowledge—is such as Hegel presents it. Is it, in general, a connected system as he holds it to be? And, if a system, does it, in particular, present such phases (such relations, categories) as Hegel shows forth? These are objective questions pure and simple; questions identical, in kind, with the question whether the constitution of glucose is what some chemist claims to have found it.

This, then, is why I conceive Hegel—entirely apart from the value of any special results—to represent the quintessence of the scientific spirit. He denies not only the possibility of getting truth out of a formal, apart thought, but he denies the existence of any faculty of thought which is other than the expression of fact itself.

His contention is not that "thought," in the scholastic sense, has ontological validity, but that fact, reality is significant. Even, then, if it were shown that Hegel is pretty much all wrong as to the special meanings which he finds to make up the significance of reality, his main principle would be unimpeached until it were shown that fact has not a systematic, or interconnected, meaning, but is a mere hodgepodge of fragments. Whether the scientific spirit would have any interest in such a hodgepodge may, at least, be questioned.

Having dealt at such length with the first reason why as yet the "transcendental" movement has found no overt coalescence with the scientific, we may deal briefly with the remaining reason.* In the second place, then, the rationality of fact had not been sufficiently realised in detail in the early decades of the century to admit of the principle of the "transcendental" movement being otherwise than misunderstood. That is to say, the development and, more particularly, the application of science to the specific facts of the world was then comparatively rudimentary. On account of this lack of scientific discovery and application, the world presented itself to man's consciousness as a blank, or at least as only stuff *for* meaning, and not as itself significant. The result was that Hegel must be interpreted subjectively. The difficulties in the way of conceiving a world, upon which science had not yet expended its energies in detail, as an organism of significant relations and bearings were so great, that Hegel's attempt to point out these significant types and functions as immanent in reality was inevitably misconstrued as an attempt, on Hegel's part, to prove that a system of purely "subjective" thoughts could somehow be so manipulated as to give objectively valid results.

Hegel, in other words, anticipated somewhat the actual outcome of the scientific movement. However significant fact may be,

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* It should be understood that in the previous discussion so far as it relates to Kant, I have taken him at his lowest terms—those of logical self-consistency. So far as Kant does not succeed in freeing himself from his original position—the existence of a formal, or apart, faculty of thought—so far his emphasis of the *a priori* in the sense already attributed to him is inevitable. But that the *tendency* of Kant is to make the thought-relations *a priori* simply in the sense of being fact's own anatomy and physiognomy I should not deny.

however true it may be that an apart faculty of thought is an absurdity, however certain it may be that there are no real types or methods of thought at all excepting those of the object-matter itself as it comes to be understood, yet to man this objective significance cannot be real till he has made it *out* in the details of scientific processes, and *made* it applied science in invention. Hegel's standpoint was, therefore, of necessity obscure. When the significant character of fact was not yet opened up in detail, a method which worked upon the basis that the only possible thought is the reflection of the significance of fact, had no chance of fair interpretation. And thus it was (and largely is) that when Hegel speaks of objective thought and its relations, he is understood as having the ordinary conception of thought (that is, of thought as a purely separate and subjective faculty), and yet as trying to prove that this apart faculty has some mysterious power of evolving truth.

The question which now confronts us, therefore, as to the present place of logic is just this: Has the application of scientific thought to the world of fact gone far enough so that we can speak, without seeming strained, of the rationality of fact? When we speak of the rationality, of the intrinsic meaning of fact, can these terms be understood in their direct and obvious sense, and not in any remote, or *merely* metaphysical sense? Has the theoretical consideration of nature in its detailed study, has practical invention, as the manifestation of the rationality of fact, gone far enough so that this significance has become, or could become with some effort, as real and objective a material of study as are molecules and vibrations?

It seems to me that we are already at this stage, or are at the point of getting to it. Without arguing this question, however, (which, indeed, can be proved only by acting upon it, only *ambulando*,) I would point out that the constant detailed work of science upon the world in theory and in invention, must in time give that world an evident meaning in human consciousness. What prevents scientific men from now realising this fact, is that they are still afraid of certain "transcendent" entities and forces; afraid that if they relax their hostility to metaphysic, some one will spring upon them the old scholastic scheme of external, supernatural unreali-

ties. To those who take the prevailing agnosticism not as a thing, but as a symptom, this agnosticism means just this: The whole set of external, or non-immanent entities, is now on the point of falling away, of dissolving. We got just so far, popularly, as holding that they are unknowable. In other words, they are crowded to the extreme verge. One push more, and off they go. The popular consciousness will hold not only that they are unknowable, but that they are not.

What then? Science freed from its fear of an external and dogmatic metaphysic, will lose its fear of metaphysic. Having unquestioned and free possession of its own domain, that of knowledge and of fact, it will also be free to build up the intrinsic metaphysic of this domain. It will be free to ask after the structure of meanings which makes up the skeleton of this world of knowledge. The moment this point is reached, the speculative critical logic worked out in the development of Kantian ideas, and the positive, specific work of the scientific spirit will be at one. It will be seen that this logic is no revived, redecked scholasticism, but a complete abandonment of scholasticism; that it deals simply with the inner anatomy of the realm of scientific reality, and has simply endeavored, with however much of anticipation, to dissect and lay bare, at large and in general, the features of the same subject-matter, which the positive sciences have been occupying themselves with in particular and in detail.

That we are almost at the point of such conflux, a point where the general, and therefore somewhat abstract lines of critical logic will run in to the particular, and therefore somewhat isolated, lines of positive science, is, in my opinion, the present position of logical theory.

JOHN DEWEY.

WILL AND REASON.

IT has always been, I think, the practice in civilised society to speak of reason or good sense as in some way influencing action. And of course it must do so, if, as we suppose, it forms the radical distinction between man and the lower animals. "Be reasonable," we say, in reference to action no less than to speculation. "Wisdom and blood," says Shakespeare, "combating in so tender a body, we have ten proofs to one that blood hath the victory." Blood here means passion. How does wisdom or knowledge combat passion? I do not say that wisdom and knowledge mean the same thing, but if they do not, we should like to know the difference between them.

In this prevalent notion of the conflict between reason and desire, it may be observed that reason is, as a rule, supposed to be negative or prohibitive. "Be reasonable" generally means "give up something you want very much." According to one account, the inward monitor of Socrates was always negative, and throughout moral philosophy, and especially throughout moralising philosophy, which is not quite the same thing, you find the point of view that reason conflicts with desire, and has in fact for its function very much to prevent you doing or caring about whatever you very particularly want to do or incline to care about. This is what gives rise to the state of things satirised in the old saying "Any young man would rather face an imputation on his moral character than an imputation on his horsemanship." If moral character means a sort of detachment from everything, this feeling is both natural and justifiable. The popular interpretation of Aristotle leans in the direction of this

idea about reason, in so far as the conception of the reason seems to be connected with common-place notions about the evils of excess, strongly represented in Greek proverbial philosophy. It was easy to add to these ideas the conception of the evils of defect, which is little more than a verbal refinement on the other. These quantitative expressions have not much meaning in morality. Unquestionably, I think, the popular aspect of the Aristotelian doctrine is an idea that you ought not to throw yourself very deeply into anything. Reason is, in short, according to these moralistic conceptions, though not according to Aristotle's fundamental view, a sort of check upon desire and little more.

This negative character of reason will, I hope, explain itself away as we proceed. The primary point on which I want to insist is not why reason is thus treated as negative, but how it comes that reason can be supposed to conflict with or control desire at all. I speak for the present of Desire, not of Will, because the meaning of desire is clearer ; whereas it is a doubt, until we have explained the nature of active reason, what Will is, and whether it is distinguishable from desire.

Now, on the other hand, there is a sentence of Aristotle "Intelligence as such moves nothing," and this seems to come home to us quite as naturally as the idea that reason controls action. All plain or unambiguous instances of reason or reasoning or intelligence, seem to deal with discovery of fact, couched in a form which is capable of truth and falsehood. For our purpose we may treat it as elaborate perception, whether direct or assisted through inference, such as calculation. Calculation is the old meaning of reasoning, both in Greek and Latin.

How do we get across from perception or calculation to anything that can interfere with desire?

Of course there is a meeting-point in the idea that attends desire. Human desire, at least, is not blind. It is desire of something, which is before the mind as an idea ; and in the case of desire which issues in action this something must be mentally specified in respect of the particular means needed to bring it about. And also, the end or purpose which is desired for its own sake, is, in the

connection of cause and effect, itself *de facto* a means to other results *ad infinitum*, more or less of which are foreseen by the person who acts. Thus the act, as fully presented to the mind in idea, is a complication of external circumstances, which are ideally distinguished, supposing the act to be reflected on, as means, realisation of the purpose, and foreseen consequences both of the means and of the realisation of the purpose.

It is, I think, all-important to remember, that these distinctions are distinctions of relation to the acting subject, drawn very lightly by the acting subject on the shifting surface of a complicated set of results presented in idea, and are not at all complete distinctions, and lend themselves very readily to self-deception. We shall see the importance of this remark directly.

In the meantime, here we have one way in which reasonings about fact do help to modify our actions. If we know distinctly what we desire, say, a week's holiday, then it is reasoning about matters of fact that will tell us what we must do to get it, and, in part, what the results will be both of our getting it and of what we do to get it. Now for philosophical purposes we need not consider the foreseen consequences separately. They must rank, morally, as means. That is to say, they are something which you have to take into the bargain in order to get what you want. They come in with all the other circumstances in determining whether you like the action or not.

Now is *this* connection between action and reason what we have in mind when we say that a person ought to act reasonably, or that reason combats desire? Do we understand by acting reasonably, that assuming some one part of the imagined circumstances to represent the purpose, the agent has got all the means to it, and the foreseen consequences of it, and the interdependence of the parts of the purpose itself, set out in a connection which is truly perceived or scientifically inferred?

We do sometimes appear to mean this. We say: it is unreasonable to ask me to be at the station at nine when the train does not start till ten. It is unreasonable, you may say, on the ground that the means demanded of me are not, scientifically speaking, neces-

sary to the end agreed upon. Still more we should pronounce it unreasonable to adopt any means which actually defeats your purpose; which could only happen, one would think, either from moral self-deception, or in complicated matters where the means are disputable. This second case does not matter to us; the first carries us a little further, because it suggests that what you call the means may really contain your purpose, or one of your purposes, perhaps inconsistent with another. The hackneyed example of selfish charity is as good a case of this unreasonableness as can be found. The gift, which is professed to be merely a means to the good of another, is, under all the conditions, a means contrary to that good, and is given because it gratifies an impulse of the donor. It might seem, in this case again, a fair explanation to pronounce such conduct unreasonable merely because the means adopted are scientifically speaking inconsistent with the end proposed. We might bear in mind, however, that we seem to have detected here a probable conflict of ends, not merely of means to an end.

Admitting, then, for the moment, that we hold conduct to be unreasonable if the perception, implied in it, of the relation between means, ends, and consequences is flagrantly false, do we admit conduct to be reasonable *simply* because the intellectual perception in question is clear and true? Taking truth in its ordinary sense, as truth of simple fact, we must deny this. I may know perfectly well that so much wine will make me drunk, and may drink it with that object and with that result, and yet no one will pronounce this a reasonable action, though my judgment of facts and results was as true and reasonable as could be. It may be, however, that in a larger sense true judgment involves reasonable action.

Thus it does not seem that truth of perception or correctness of calculation as to the connection of the circumstances which are presented in the idea of an act are sufficient to make the act reasonable, although serious blunders in the perception or calculation seem to make the act which implies them unreasonable. I even doubt whether the last clause was rightly stated. I was obliged to say *flagrant* errors, *serious* blunders. For it seems doubtful whether a purely intellectual error, or blunder of perception, does make an

act "unreasonable," which owing to such a blunder misses its mark. I incline to think that the reason why we are forced, in such cases as I have instanced, to lay stress on the *flagrancy* of the blunder, is that it makes us suspect self-deception or moral neglect on the part of the agent, makes us suspect, in other words, that the inconsistency between means and ends was not owing to mere intellectual misjudgment, but was adopted with open or partially open eyes. I do not think that I *should* call my friend unreasonable for wanting to meet at the station an hour before the departure of the train, if he could show me *bona fide* grounds which made him imagine that it was necessary to arrive so early. I might in that case think him mistaken, but should not venture to call him unreasonable, unless his mistake seemed so obvious that I thought it was committed on purpose, that is, was not an intellectual mistake at all. When I call him unreasonable, perhaps I really suspect he is making a claim on my time to meet some private convenience of his own—to avoid a crowd or to make sure of some particular carriage, which I do not care about—and therefore perhaps it may after all be his *purpose* that I think unreasonable.

But there is one great doctrine of reasonableness which does reduce it to a question of means and ends, and that is, the doctrine that everything else is a means to pleasure, whether that of the agent or that of all sentient beings. I do not want to discuss Hedonism psychologically just now, I only want to use it as an illustration of one way in which intelligence may be alleged to control action. The ultimate theory would then be that this uniform purpose, pleasure, is a natural or obvious, or, so to speak, a *given* purpose, and that all definite action is or has been prescribed by the intelligence dealing with matter of fact, as a means to the realisation of this given purpose.

Then reasonable action would mean what our reasoning and perceptive powers, dealing with matters of fact, pronounce to make for pleasure, and unreasonable action would be all that does not. Here, though I wish to avoid hackneyed criticism, I must note that there is a certain difficulty in getting across from the idea of one's own pleasure to that of other people's pleasure as a natural pur-

pose, and sometimes we find the contention that any person's pleasure is a *reasonable purpose* to any person, which, like several indications before, takes us out of the connection between reason and the mere calculation of means to an end.

Apart from this, I have, for our object, only to refer back to the suspicion with which we regarded these distinctions between means, ends, and consequences, in the presented idea of an action. The burden of proof lies on those who limit the aspects in and for which activities or results can be or ought to be desired. If we say that the whole complex of our moral life is a means to a partial though necessary incident in it, it seems to me that we are putting the cart before the horse. If you could really say "moral life is the means, and pleasure is the end" then it would follow that, should calculation tell you that moral life was not the most effectual means, you would not prefer it. Now this old argument may be pronounced unfair on the ground that it puts an impossible case; just like the counter-question which is asked by the opposite side, "If morality led only to increased pain, would you prefer it then?" Still, if these two questions together bring out the fact that pleasure is an incident of a whole complex of functions and activities which we cannot suppose to be separated from it, we do get this much result, that there is no firm ground for distinguishing part of the complex as the end from the rest as the means. And it seems clear, also, that we differentiate pleasures *in kind* according to the activities which they accompany, just as we have constantly found that the so-called means differentiates and qualifies the so-called purpose.

Thus I do not think that it is possible to represent the reasonableness of action as consisting in its guidance by right calculation of the means to an end, not even to the alleged simple and universal end of pleasure. At the same time, this view has one essential element of truth, that is the recognition that a positive impulse or claim can only be combated or defeated by a positive impulse or claim. The view goes so far indeed as to say that one form of a general impulse can only be combated by another form of that same impulse through the discrepancy of the alternative means to its at-

tainment. However this may be, so much does seem clear, viz. that reasonableness cannot be, as popular language tends to make it, something purely negative and prohibitive. Its negative aspect must be secondary, and according to the suggestions furnished by the notions we have been examining, must arise out of a discrepancy between two sets of means to the same acknowledged or accepted end. This I think is solid ground, so far that we are bound to deduce the negative side of reasonableness from a positive nature, whether a general relation to one and the same purpose, or relations to different purposes. We have learnt, on the other hand, to distrust the absolute distinction between means and end.

2. Now I turn for a moment to what I may describe as *maxims* of reasonableness. I will not call them "A priori principles," because such an expression raises a question about the nature of experience which does not concern the point before us. But I do treat them as characteristic of a view which explains reasonableness rather by rules than by purposes; and it seems to follow from this that the rule must be alleged to be self-evident, because if they were derivative, they would most naturally be derivative from purposes. But in the history of speculation of course the same principle may be recommended at one time as analogous to an axiom of the reasoning power, and at another time as involved in the purposes which are recognised as good. Even the same writer may combine both views.

Now if such principles are supported as constituting the reasonableness of action, either because connected with the predominance of the speculative intelligence, or because of an analogy between such principles and any axioms acceptable to the speculative intelligence, I believe that this support of them is due to a sheer confusion.

I take two only, as illustrations, one of each type I have mentioned.

Plato, it seems to me, constantly fails to distinguish between the reasonableness of conduct, and the reasonableness of abstract reasoning, that is, of the scientific intellect. To the moral philosopher, scientific or theoretical interest and activity are one interest

and activity among others ; and the reasonableness of activity is not insured by pursuing an activity of reasonableness. It *may* be quite unreasonable, in the moral sense, to pursue abstract reasoning as a vocation in life. When we say that in every man the reason should be uppermost, we do not mean that every man should devote himself to intellectual pursuits. Plato knows this, as, in a sense, he knows everything ; but he uses all arguments for his purpose, and among others I think he allows it to be supposed that occupation with intellectual matter is in a moral sense a predominance of the reason. I may instance his attempt to prove that intellectual pleasures are the pleasantest, more especially with reference to his aim in making the attempt, which is, I suppose, to recommend intellectual occupation as pre-eminently reasonable in the moral sense. To this I say No ; if and in as far as the inference is meant to rest upon an identification of scientific with moral reasonableness, I think it a sheer confusion. It is like saying that because a doctor has to do with the promotion of health, therefore it is a healthy profession to be a doctor. But Plato's argument shows how strongly this idea appealed to him, because he even recommends intellectual pleasures on the score of their sheer pleasantness, implying not only that intellectual occupation is reasonableness in the moral sense, but that intellectual occupation, even when chosen by way of self-indulgence, is still reasonableness in the moral sense. Of course the matter is complicated by a substantive connection, the degree of which is matter of opinion, between the two things, like that between being a physician and leading a healthy life. Intellectual exercise and ambition have a definite influence on certain capacities concerned in the reasonable will. But it cannot be made out, that a tendency to the more intellectual occupations is in itself a tendency to moral reasonableness. Moral reasonableness must be a general characteristic of moral action, not guaranteed by the special content of any form of activity.

Next I have to discuss a principle which is advocated as an expression of the morally reasonable, on the ground of having a sort of analogy to several maxims or axioms of the intellectual world. It used to be said that justice is like a square ; or that the

rightness of an action consists in its conformity to certain eternal proportions impressed upon the world by God. I take one more modern form of these principles as a type of them all. Bentham said, "One is only to count for one," and it is a mere amplification of this when Mr. Sidgwick maintains, if I understand him, that it is objectively reasonable not to prefer my own interest or pleasure simply because it is my own, to that of some one else. This principle seems to me a commendable expression of moral judgment, and I do not think that it is needless or empty. There is a famous passage in Middlemarch where the heroine, in a matter which acutely touches her own feelings, thinks to herself, "Now how should I act if I could compel my own pain to be silent, and merely consider what is best for the lives of all the persons concerned in the situation?" That I suppose is a concrete rendering of what this principle means.

But if we look closer, we see its weak side. It is negative, and consequently abstract. You are not to heed your own feelings unless they are such that you would heed them if they were some one's else in the same circumstances. This amounts to no more than saying, "We believe there is always, under all circumstances, a right course." It is strictly parallel to the theoretical principles of Uniformity or Causation. "We believe that there is an explanation for everything; that nothing changes without some reason." These are useful maxims if they make us look for the explanation, and so the other is a useful maxim, if it makes us look for the right course. But it really falls between two stools. It is not capable, as intellectual theorems are, of accurate development and application by measurement and analysis. Yet on the other hand it makes no special appeal to any special content, or tendency of reasonableness embodied in definite ends. It is neither theoretically fertile, nor is it a description of a practical influence.

It is a well-known phenomenon that those who suggest maxims or moral axioms of this kind as defining moral reasonableness are apt to be reduced to assuming a particular impulse, told off to assist or obey the reason. Such are Plato's "Spirited" element in the soul, Kant's reverence, Mr. Sidgwick's general desire to do what is

reasonable. This seems to me to be creating a rule which has no positive content, and therefore has not the character of a human purpose, and then imagining an impulse to obey it the nature of which is not accounted for in reference to any plan of life, but must simply be propounded as an isolated fact.

It kept suggesting itself to us above that reasonableness could not be thoroughly explained on the basis of a distinction between means and end, because actual ends are not simple and uniform, but are obviously qualified by the so-called means, or context of circumstance. We agreed, however, that what is reasonable must be so in virtue of a positive content, whether as means or perhaps as end, and that its negative or prohibitive aspect must arise from the conflict of two such positive contents.

We have in this section looked at two interpretations of moral reasonableness apparently suggested by analogies with intellectual reasonings or principles, and we could not deny that each of them had a certain appearance of truth, but one seemed to confuse the content with the form, the other to consist of a form without any content.

3. It suggests itself therefore that moral reasonableness must be a characteristic which we ascribe to purposes of action. Then we get a variety of positive content, without relying on the distinction between means and end; while the abstract principles which we feel to be reasonable fall into their right place as very general descriptions of a purpose or scheme of life which can be called reasonable.

But the idea of a reasonable purpose requires explanation.

First, it is irreconcilable with abstract Hedonism. You cannot have any relations within a single and uniform purpose, and reason always involves relations.

Secondly, it is not the most intellectual purpose, the purpose that has most to do with reasoning. I have tried to explain this above.

Thirdly, it *is* such a life or purpose as possesses a self-consistent relation of the parts to the whole. This is the general characteristic of any reasonable totality *qua* reasonable, and it is this which

forms the general characteristic of reasonable purpose *qua* reasonable.

Then what is the meaning of the self-consistent relation of parts to the whole in the case of a human scheme of life?

We cannot demand that our specific purposes should be related consciously to the purpose of the universe ; because the universe as a whole is the object of theoretical knowledge only, and this does not furnish us with the idea of a concrete purpose at all. It seems then that the whole, by consistency with which human purpose is or is not reasonable, must be the whole of existing human purpose, taken of course as moving in a certain direction, owing to the modification continually introduced through the progressive realisation of purposes. I do not see that more than this can be said without entering upon the analysis of the actual structure of the moral world, of society and of history. What is important seems to me to be that we cannot construct the reasonable world of morality from a theoretical view of men in general and of nature. We have to take it as it is, and are then perhaps able to show that it is an organised movement in the direction of self-consistency of purpose.

Is there not more than one kind or type of self-consistency possible, as when self-indulgence is restricted simply within the bounds of health and decency ? This is the question whether consistency demands completeness, i. e. whether mere omission destroys consistency. It has often been discussed, and I suppose the general answer is that *assuming the unity of the total moral movement*, any elements omitted in any portion of the movement must ultimately have their revenge by producing disturbance.

Then if we ask what after all is the relation of the theoretical reason to the reasonable will or moral reason, the only answer seems to be that the moral reason, in the individual or in the race, is the body of intellectual ideas which are in fact predominant as purposes in either, having become predominant by the power they have shown of crushing out or adjusting to themselves the active associations of all other ideas. And the power is what might be described as logical power ; that is to say it depends on the range

and depth which enables one idea to include in itself as in a system a great variety of minor purposes.

The intellect as such is for morality in the first instance simply the medium in which the moral world or content of the moral world exists; and which therefore conveys to that content its own peculiar character of system and totality. Then, further, in theoretical reflection on the moral world, I imagine that we notice this predominance of ideas which have organising power, and we frame to express this predominance such predicates as important, right, good. And the whole of these judgments we must call wisdom as opposed to knowledge. But I cannot myself see how these or any judgments can be judgments of the moral reason. They seem to me to be, as judgments, necessarily judgments of the theoretic reason dealing with the facts of the moral world. But then there is the further complication that these judgments themselves, forming the content of intellectual ideas, may, if they have organising power, become actively predominant, and then again they will form a portion of the actual moral world as general ideas or clues, inciting to the active search for concrete ideas which are concordant with them. In this case they are not acting *as* judgments, which are true and false, but only as dominant contents. It is one thing to judge that there is a right in the moral world, and another thing to be mastered by the right in one's own mind.

If I am asked, what I mean by the predominance of dominant ideas, which I allege to form the content of the reasonable will, I start from the position that every idea would produce action if unchecked, simply by suggestions which through associative reproductions call up the necessary movement. Desire may, I believe, or may not intervene, as a state of tension between a pain of want and a pleasure produced by an idea. All that is essential, it appears to me, is this idea which can suggest an action.

In the formed life of a civilised man the organising ideas have long asserted their predominant power, and in every moment crush out countless intruders each of which has in itself suggestions quite capable of leading to action. In childhood or insanity the yielding to every suggestion is a mark of what is called absence or loss of

will; that is, not the loss of a *general* power to check minor suggestions, but of perfectly *definite* habitual purposes which check them as a matter of course.

This view sounds no doubt like an iron Determinism, and I am not much concerned to defend it from that imputation. After all, if we are determined by the content of our own minds, why then I suppose we determine ourselves. And trivial examples of indifferent alternatives such as "I can blow out this candle or not as I please" seem to me very poor representatives of the moral will, compared with the necessary pressure of an over-mastering idea which drives the man up to the point of saying, "This is what must be decisive with one like me, and I have no alternative." We feel, as we say, that "we shall have to do it." Almost all really serious action, it seems to me, is of this type. And if I have read at all correctly this lesson of the new psychology which owes its origin largely to Herbart, it is an instructive meeting of extremes, that the most analytic of psychologies should more than ever represent the individual as the incarnation of a progressive order in ideas.

B. Bosanquet.

ETHNOLOGICAL JURISPRUDENCE.*

THERE is in the history of jurisprudence no more significant event than the foundation of the historical school by Gustav Hugo and Carl von Savigny. Jurisprudence, up to that time, was not a science, at least not a science in the modern acceptation of the term. It was an art, which the practical lawyer learned and employed in strict conformity with practical traditions, without reflecting on the reasons in virtue of which a legal norm or a social institution existed. The only part of jurisprudence of a scientific tendency was the philosophy of law. This latter branch had, since Hugo Grotius, emancipated itself from the church, but it had advanced no farther than to substitute for the will of God, to which formerly right and wrong had been traced, the principle of human nature, and to found upon the social instincts of man a system of natural law,—an ideal jurisprudential state by reference to which positive laws were tested in respect of their conformity with the ideally right and the ideally wrong. This fundamental conception of the essential character of law was only slightly modified by the substitution of the human reason for human nature. The rational systems of jurisprudence also derived the state and the law from the individuality of man, especially from the social traits of this individuality, and definite notions and principles were thus enunciated from which state and law were deductively constructed.

The historical school first introduced a change in all this. It afforded the legal practitioner the possibility of seeing that the law

*Translated from the manuscript of Dr. Albert Hermann Post by Thomas J. McCormack.

which he applied was the slowly ripened product of a course of development that extended over many centuries, and it afforded the philosophical juristic inquirer the possibility of understanding, that the law was not founded on immutable ideas and principles, but that it was a product of the creative mind of a nation, that this product was subjected to processes of transformation and development, and did not admit of regulation by the individual reason of a single philosophical inquirer. But while the history of law has become a universally recognised discipline in the science of jurisprudence, the application of its underlying principles to the philosophy of law has as yet by no means been universally carried out. On the contrary, the reason still plays an extensive rôle as foundation and evolutionary principle; and to a great extent the history of law and the philosophy of law still pursue their solitary ways as independent branches of knowledge.

In recent times, through the influence of ethnology, jurisprudence has entered on a new epoch. A new branch of the science of law has arisen in Europe, the so-called ethnological jurisprudence, and has already found in Germany, Austria, Italy, France, Belgium, and Holland, enthusiastic supporters. Ethnology, as it is known, is the science that has for the subject of its investigations the totality of phenomena of social life of all the peoples of the earth, and which makes use, in this investigation, of the methods of inductive inquiry exclusively employed by physical and natural science. After the science of ethnology had advanced to a certain point, the extension of ethnological inquiry to the domain of jurisprudence followed as of course.

To a certain extent the investigations of the history of law had prepared the way for ethnological jurisprudence. The inductive method was common to both. The idea of a history of the development of law was no longer strange to jurisprudence. Only the courage was wanting to allow the eye to range over the legal systems of all the peoples of the globe, instead of, as before, restricting it to very narrow limits. The historical investigation of law began in Europe with the history of the Roman law. Thereupon it was immediately extended to the Germanic laws of Europe, so

that now all West-European peoples possess a highly developed history of law of their own. Recently, also, the history of Slavonic law has been assiduously treated.

Whereas in every case here it was a question of the sources of the laws that stood in immediate historical connection with the prevailing systems of Europe, jurisprudential investigation was slowly extended to more remote ethnical fields. The first impulse in this direction came from comparative philology. This science had succeeded in tracing the languages of extended groups of peoples back to common primitive tongues. Among these primitive tongues the Aryan, the common original language of the Indo-Germanic group of nations, first occupied the attention of inquirers, and the law of this group of nations thus became the first object of investigation of a comparative jurisprudence extending beyond the more restricted provinces of the history of law. The provinces of Græco-Italic, Germanic, Slavic, Celtic, Iranic, and Indian law were investigated with respect to a common origin, and various agreements and various deviations were discovered. In very recent times the laws of the Armenians and the Ossetes in the Caucasus have been added to the laws of the Aryans, and the laws of the Afghans will probably soon follow these.

A number of more remote provinces of law have also been entered upon, in connection with theological, philological, and connate inquiries. Thus, particularly, in connection with biblical investigation the Israelitic law, in connection with the study of Arabic the Islamitic, in connection with the decipherment of the hieroglyphic writings the Old-Egyptian, in connection with the decipherment of the cuneiform inscriptions the Soumerian and the Assyrian-Babylonian, and in connection with sinology the law of China. In very recent times the Japanese law has also been treated.

In the laws of all these peoples, by the side of many peculiarities, were also found many phenomena of frequent and universal recurrence.

After the science of law had so far extended its activity in this direction, it was a final step only that ethnological jurisprudence took when it declared that the subject of juristic science was the

investigation of the laws of *all* the peoples of the earth. And yet this step was perhaps a more important one than all that had hitherto been taken. For a considerable group of peoples had up to then been entirely neglected by the science of law, namely the uncivilised peoples, the so-called primitive peoples or *Naturvölker*. And just the laws of these savages furnished the most remarkable disclosures. They exhibited everywhere the most singular parallel phenomena, and made it possible to open up a complete early history of the law, and to bring to light periods of jural development of which the history of civilised peoples has preserved but a few unintelligible remains. Ethnological jurisprudence is thus able to supply complementary information at a point where the threads of the history of law are lost in the obscurity of early times.

The condition of jural life in these primitive periods is very singular. No juristic philosopher has ever lighted on the idea that primitive man could exist with such jural conceptions as he actually does. That which ethnological jurisprudence has brought to light in this connection is something absolutely new and astonishing, something that no brooding brain could have ever developed out of any idea or principle. Indeed, it is so strange that it could not be conceived at all if we did not have it before our eyes to-day among savage tribes.

The collecting of the laws of uncivilised peoples constitutes an independent task of ethnological jurisprudence. In this way the latter science will fill up the gaps which historical jurisprudential inquiry left open in our knowledge of the jural life of man. But more important than all, perhaps, will ethnological jurisprudence become for the future development of the philosophy of law. In this connection it goes hand in hand with the sociological tendency which dominates our time and has its surest foundation in ethnology.

The prime significance of ethnological jurisprudence lies in the fact that it is an ethnological science.

At first ethnology was a purely empirical science. It gathered together all the attainable phenomena of ethnic existence, and separately, at first, among single peoples and tribes. After an extensive

store of material had accumulated in this manner, the discovery was made that in many provinces of ethno-social life, especially in the provinces of religion, law, and morals, especially also in all provinces of social custom, phenomena of essentially similar character presented themselves among a great number of peoples in the case of whom neither any original tribal relationship nor any infusion from one nation into the other could be assumed; and, curious to say, these were frequently the most singular phenomena, of which one would have thought at first that they had sprung from the individuality of a determinate people. This discovery of universal ethnographic parallels was all the more surprising in view of the fact that historical special inquiry, whose province up to then had been essentially national life, had placed especial emphasis on outwardly prominent events occurring in a different form in every nation, whereas phenomena that appeared uniformly among the different nations were little noticed. People had therefore grown accustomed to regard every nation as something existing by itself and peculiar to itself, and, particularly, had also declared it as inadmissible to employ phenomena of the life of one nation to explain corresponding phenomena of the life of another nation.

The discovery of ethnographical parallels led to wholly different ideas. It became clear that a great portion of human ethnical existence was not founded in the peculiar character of particular peoples, but in the character of the human race, in the universal nature of man. And it became in addition clear that that which repeated itself everywhere on the earth, which was therefore an expression of the universal human, was something entirely different from that which previous philosophy had declared to be the actual human. It also became clear, at the same time, that the nations thought quite differently from what the individual man did. With this, however, the foundation of the entire previous philosophy was shaken. If the axiom of modern ethnology is correct, namely that it is not *we* that think, but *it* that *thinks in us*,* we shall no longer be able to explain our nature from our consciousness, from our ego, from our

* Bastian.

reason, but we shall have to pursue this momentous "It" that thinks in us, and since we cannot find it *in* us we shall have to search for it *outside of* us in the expressions of the human soul in the life of the race.

This is the fundamental idea of modern ethnology. It seeks to collect all the expressions of the human soul in the life of the species, and from them to derive its inferences as to the nature of man. It regards ethnic existence as the precipitate of human psychical existence, and not merely of that part of it which is conscious, but also of that part of it which is unconscious, that which is inaccessible to introspective observation, that which is not thought, but is merely lived. It enlarges accordingly the domain of psychology, which was restricted hitherto to the analysis of the human consciousness, by the incorporation of an additional domain unmeasured in extent.

These general conceptions of ethnology are also determinative for the science of ethnological jurisprudence, and from this results its peculiarity as contrasted with the other branches of juristic knowledge.

Ethnological jurisprudence places the centre of gravity of the science of law not like the previous juristic philosophy in the individual jural consciousness, but in the law viewed as a province of ethnic existence. It regards the laws of the nations as the precipitates of that which is now active and has been active as jural instinct in the entire human race. It assumes that when all the phenomena of law in the life of the nations have been fixed, an infinitely more valuable material will be drawn therefrom adapted to the disclosure of the nature of law than could have ever in the world been acquired by an analysis of the individual jural consciousness. It does not regard the individual jural consciousness as something innate in man and exempt from the altering effects of time, but as a product of the social conditions in which the individual has grown up. It assumes, therefore, that the individual jural consciousness changes with a change of the social conditions, so that a man who grows up under different social conditions possesses a different jural perception. This assumption, if we compare the expressions of the jural

consciousness of races low in the scale of culture with those of civilised peoples, is one that cannot be escaped. We have only to recall to mind the irresistible force with which the jural sense of peoples that live under clan-constitutions demand vengeance of blood, whereas this species of retaliation no longer exists in our jural consciousness of to-day. Thus there are hundreds and thousands of jural instincts and conceptions which are present at certain stages of civilisation and disappear entirely at others.

Ethnological jurisprudence therefore assumes, that the juristic philosopher who lays at the foundation of his system essentially his own jural consciousness, simply enunciates therewith a system of law that answers perhaps to the current conceptions of his time and his people, but which can in no sense lay claim to a value beyond that.

Quite different, on the other hand, are matters conditioned when the inquirer has before him the laws of all the peoples of the earth from the lowest to the highest. Here he has in his possession a picture of the jural consciousness of the mind of humanity, which is no longer subject to alteration, but which, to the extent that the development of human jural life has advanced, is complete.

For the execution of its task ethnological jurisprudence first requires a collection of the laws of all the peoples of the earth. Each one of these laws is of equal value to ethnological jurisprudence in so far as the jural consciousness of humanity has found expression in it in any form. Especially deserving of consideration are the laws of the so-called savage peoples that have been so much neglected and contemned hitherto ; since they bring to light the jural consciousness of humanity in its germinal stages, and since higher formations are invariably best understood when we know their first beginnings.

The solidest basis for ethnological jurisprudence would be furnished by a monographic treatment of the law of every single tribe and people of the earth. By such monographic treatments the entire social organisation of a given tribe or people would be exhibited in all its complicated reciprocal relations, and we should be able to follow the law in all the thousands of minute ramifications that con-

nect it with the remaining provinces of national life. But such a monographic treatment of the law of all the nations of the earth is accompanied with great difficulties, and this part of the task of the science of law has as yet been undertaken only to a limited extent.

The condition of affairs is best in this respect where the nations themselves have collected and compiled their legal customs in books of laws. But such collections are found only among peoples that deserve to some extent the appellation of civilised peoples. Among the great majority of peoples the law is simply practised and handed down by oral tradition, so that here the legal customs must be collected by members of foreign civilised nations,—a very difficult labor and one that can be accomplished only by persons who take up their abode permanently among the races in question and become thoroughly familiar with their language and habits of life.

Collections of this character we possess unfortunately only to a very limited extent, and our knowledge accordingly of the law of uncivilised peoples is still very meagre. Even the books of law possessed by the various peoples have not all been made available to juristic science. In part they have not yet been printed, and in part they have not yet been translated into a generally understood language. Considerable time will yet be required before the existing material has been made wholly accessible.

Not before the legal customs of all the peoples of the earth have been collected will ethnological jurisprudence be in a position to furnish a successful solution of the task it has set itself,—the task namely of a causal analysis of all the phenomena of the jural life of the human race. Yet to a certain extent this task may be undertaken at present, even with a relatively limited store of material.

The starting-point for the ethno-juristic investigation of the phenomena of jural life is furnished by the ethno-juristic parallels, legal customs that are found uniformly appearing among the nations, without there being any reason to assume that one nation has received them from another. Legal customs of this character are in part so universally diffused over the earth that they may be characterised as a common possession of mankind; in part they appear sporadically among unrelated peoples; in part they are restricted

to more limited domains. The most important legal customs are those that have universal dissemination; for here it may be assumed that they are a necessary emanation of the social side of human life. Legal customs that occur only sporadically, but appear uniformly among unrelated peoples, must likewise be regarded as the products of the universal nature of man, yet only as such that *can* arise under definite conditions of existence. Legal customs that occur only in limited ethnological domains will have to be referred to the peculiar character of definite peoples and tribes. Legal institutions of universal character are, for example, the forms of marriage by capture and purchase of the bride, blood-vengeance, the right of refuge, the systems of composition, ordeals, oaths, and so forth. Almost universal are the levirate, and the betrothal of children. Sporadically among unrelated peoples appear: the seizure of the corpse of the debtor for debt; execution by fasting, whereby the creditor brings pressure to bear upon his debtor by having him fast a definite period of time before his dwelling; the custom of the chief doing combat with his grown up son, to whom the command of the tribe passes if he conquers his father; and so forth.* Frequently it is the most curious customs that thus recur, among peoples that are completely separated from each other by oceans and inaccessible mountain ranges and have unquestionably never been in communication with each other.

The explanation of these ethno-juristic parallel phenomena is in part not very difficult, inasmuch as many of them can be traced back to fixed forms of social organisation. Thus, for example, a whole group of universally recurring legal customs is associated with the peculiar formation of the clan-constitutions and clan-law which regularly appears among uncivilised peoples and characteristically differs from the form of political organisation familiar to the present age. Many legal customs are also based on religious conceptions and social customs, and their explication in such cases is frequently very difficult.

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* The reader will find a brief survey of the ethno-juristic parallels appearing among the various peoples of the earth, in a treatise of mine entitled *Ueber die Aufgaben einer allgemeinen Rechtswissenschaft* (1891), pp. 27 to 72.

A complete explanation of all the legal customs of all the peoples of the earth with respect to their social causes would exhaust the work of ethnological jurisprudence as an ethnological discipline. But in the same way that the acquisitions of ethnology are in their turn utilisable towards the constitution of a universal philosophy, to which they will impart perhaps an entirely different character, so will the results of ethnological jurisprudence be in their turn utilisable towards the constitution of a universal science of law and for the philosophy of law, in which probably, through its means also, a powerful change will be inaugurated. These are the ideas, traced in their most general characters, that may be regarded as the fundamental ones in "ethnological jurisprudence."

Albert Hermann Post.

AMERICAN POLITICS.

NOTHING in this country appears to the stranger more intricate and inexplicable than our politics. The different parties, two big ones and several little ones, the various machines, county, state, and national, the "bosses," "heelers," and "workers" present such a confusion of ideas and a terminology so varied, that it is only after many years that the foreigner begins to comprehend our system of government and the principles underlying our political movements. Indeed, the majority of Americans themselves are no better off and have no clear perception of the part they are playing in the administration of affairs or the ethical effects of the ballot which they cast. Ask the ordinary voter why he supports the candidates of a certain party and you will find that his reasons are reducible to a few concrete facts, and are rarely governed by any general principles.

In the Southern states the vast majority of the whites are democrats through opposition to the republican party which fought the war and deprived them of their slaves. The negroes on the other hand are republicans because it is to that party they owe their freedom, and from it they expect protection for themselves in the exercise of their political rights and the blessings of opportunity for education. The political question there becomes a race question, utterly regardless of the principles which the two great parties represent. Let there be a complete change of platforms and the result would be precisely the same as it has been for the past generation—the South would still remain democratic, and the votes of their presidential electors would still be cast for the candidates of that party.

There is a minor race question in the feeling against foreigners, more especially Irish, Italians, and Germans, influenced to some extent by the fact that a large number of these foreigners are Roman Catholics and that there is an uneasy suspicion on the part of some Americans that the Catholic church is hostile to the spirit of democracy, a suspicion not entirely unfounded if one should judge solely by the sayings and doings of some of the prelates of that church for the past forty years. This "Know-nothing" sentiment at one time threatened to create a solid foreign vote in opposition. Germans and Irish united under the protecting wings of Tammany Hall and, aided by clergymen who hoped to obtain part of the state educational fund for their private parochial schools, formed a strong ally to the national democratic party. Happily prejudices of race and religion are dying out and neither party can now claim a monopoly of the foreign vote. Strange as it may seem, however, the Irish and German elements, so recently the objects of proscription themselves, have in late years become embittered against the Chinese. To the patient industry of the Mongolian immigrants is due the building of the Pacific railroads, when it would have been impossible to obtain white labor, and the cultivation and development of the Pacific coast states. Congress was terrorised into passing the law excluding all Chinese laborers. It was more than race prejudice which contributed to this hatred of the Chinese. The chief reason for Chinese exclusion was an economic one. Great masses of laborers feared that the Chinese by immigrating in vast numbers would deprive them of work by taking their places at lower wages, and, having the ballot, they dictated to Congress the terms of the Anti-Chinese Act.

The alien contract labor law is a measure conceived in the same spirit and directed against the hiring of laborers abroad by American contractors, who could thus displace their employés at lower wages by Hungarians, or Poles, or Russians, ignorant of the language of this country and whose compensation could be the more easily reduced to a bare maintenance, and who in sickness or old age could be turned out on the roads to die without costing the contractor any contraction of his bank account. There was some excuse for this

law, or at least for the feeling which prompted it, when the miners of a whole section could be evicted and they and their families made to suffer the pangs of slow starvation because the owners of the coal lands found they could obtain human machines at a less cost from abroad. It was natural that the laborers should demand a law which offered some immediate relief even at the risk of meeting wrong with wrong, rather than that they should attempt to regulate affairs on abstract principles of justice while their stomachs were empty and their wives and children were dying for want of sufficient nourishment. That feeling, however, is also vanishing and American workingmen are beginning to see that the increase in population, native-born as well as that imported by contract, is steadily adding to the number of competitors and lowering the rate of wages. Their attention is becoming more and more directed to the opening of new opportunities for work rather than to the restricting of the number of workers.

Another class of men, if they vote at all, do so on no general principle of public welfare, but solely for their own advantage at the expense of their fellow men. These are to be found among the rich manufacturers, the coal, and iron, and railway kings, and the manipulators of the crops of the nation. Rarely casting a ballot in person, they give notice to their thousands of employés that if the latter do not support the candidates or the party which they happen to favor, the employés' places will be given to more pliant servants. These men are as non-partisan as the most ardent reformer could wish. One of them, a few years ago when questioned by an investigating committee of the New York state legislature, said: "In a republican district I was a strong republican; in a democratic district I was democratic; and in doubtful districts I was doubtful, but in politics I was an Erie railroad man every time." Another famous man of the same type said he had no politics; that he found it cheaper to buy up one set of legislators after they were elected than to purchase two sets of candidates before election. These corrupt men, counting their wealth by tens of millions, influencing state legislatures and the national Congress, and throwing their weight into Presidential campaigns, constitute the chief "dangerous class"

in the United States to-day, far more threatening to the permanency of free institutions than the anarchists who were hanged at Chicago.

Then there are the illy-paid employés of these men who do their bidding at the polls, voting for the candidates of their masters. Promise of office or patronage lures others into the support of one party or the other. Lastly come the poorest of the poor who live in the most miserable tenement houses, or when single hive in the big lodging-houses which are found chiefly in New York and Chicago. A ton of coal or a barrel of flour is the bribe to the former, frequently effected through the medium of the poor wretch's wife who does not care for politics but sees a very material advantage in the food or fuel offered by the ward worker. The lodging-house voters, paid by drinks of whiskey or dollar bills, until recently in New York were marshalled in squads of twenty or thirty early on the morning of election day, given their ballots and compelled to hold them aloft between the thumb and forefinger of the right hand so that the heeler or paid servant of some political faction might watch them from the moment they took their place in the line of voters until their ballots were handed to the election inspectors and dropped in the box. Both parties wink at such frauds and their henchmen directly countenance and assist in them but the party that happens to be in the majority in any locality is usually the one most guilty. The result is that the minority affects great virtue and loudly denounces the corruption of its opponents.

Among those who do vote on principle are the prohibitionists, the greenbackers, the adherents of ephemeral labor parties and the socialists. The anarchists generally refrain from voting because they do not believe in any government by force and say that an enlightened public opinion will lead the people to dispense with such things as the army and navy and police and law courts. The socialists occasionally vote for the men of other parties whom they think represent the worst measures, in order the sooner, as they frankly avow, to produce revolutionary conditions, which they expect would assist them greatly in their propaganda. The prohibitionists, greenbackers, and labor men each take a partial view of political economy. The first see the evils and degradation arising from

intemperance and think that everything else must yield to the one consideration of the abolition of the liquor traffic. The panacea of the greenbackers consists in the destruction of the monopoly of the currency now enjoyed by the national banks. The labor men have different shibboleths at different times such as the prevention of child labor in factories, an eight-hour work-day and the like—measures which might effect some relief but are minor matters compared with the great social problem of the increase of poverty in the midst of the greatest productive energies which the world has ever seen, a problem which is rapidly coming to the front and overshadowing all others.

But these minor movements hardly produce a ripple on the surface of our political waters. There are only two parties worthy of the name in the United States to-day, as there have been but two ever since the days of Thomas Jefferson and Alexander Hamilton. These parties go on forming platforms chiefly on the theory of offending the least number of voters and phrasing their declarations in vague terms which may be explained one way in one part of the country and another way in another part. Such is a cursory view of the field of American politics to-day.

It may seem that I have made out a pretty bad indictment of corruption against our politics and that the view of the cynic is correct that American politics are desperately wicked and there is no health in them. But the moral forces which are operating in the world are fortunately not dependent upon the changeable methods or the selfish objects of men. It is here in America, perhaps more than anywhere else, that the natural laws of social development have fullest play. It is here that the evolution of politics is working itself out freely, untrammelled by tradition or custom. It is here that the ultimate ideal of politics will first be reached. When the framers of the Declaration of Independence formulated their proposition that governments derive their just powers from the consent of the governed, a step in the right direction was taken—a step that was in accordance with our old Saxon traditions, yet for the first time in the world's history made on an extended scale, to base human government on the principles of natural law. And through all the vicissi-

tudes of our country, its struggle for independence, its war for the liberation of its commerce, its civil conflict which would have dismembered any other nation, or would have left one section the subjugated serfs of the other, through a disputed presidential election which strained the written constitution to its utmost, the great moral force of natural law has been working, now through one party, now through another, gathering impetus as it goes and giving promise always of better times to come.

It is in this broad view that all the petty thieveries and striving for place and power sink into utter insignificance. The people do still rule. They may sleep for a time but are sure, sooner or later, to assert their rights in accordance with the instincts of the human mind, which are good and not bad. As long as the suffrage shall exist it is reasonably certain that this American government, "of the people, by the people, for the people," shall not perish from the earth. If the wealthy monopolists could control the suffrage, the prospects might be different. The freedom of the voter has been impaired to a certain extent but the American people with quick instincts have awakened to the danger. The Australian system of voting, which secures secrecy and freedom from intimidation and almost extinguishes bribery is now becoming very popular. Fifteen of the states have adopted it and the other twenty-nine will, no doubt, follow their example in a few years. But the introduction of measures for its establishment presented the curious anomaly of being opposed by democrats in some localities and by republicans in others, both for partisan reasons, constitutional and high moral pretexts being of course advanced. When it becomes the general law, it will do more than anything else to purify electoral methods.

Entirely above the question of methods, however, there are certain principles involved in American politics which it becomes of the highest importance to comprehend and which furnish the key to the apparently inexplicable confusion. These principles, it seems to me, are reducible to two, which may be likened to the centripetal and centrifugal forces in nature. As both are needed for the stability of the physical universe, so both the centralising and decentralising tendencies in politics are necessary for the co-ordination of the state.

It is in the free play of these forces, each in its proper sphere, that lies the assurance of the perpetuity of American institutions. But as the ideal has not yet been reached, the practical result is that one tendency begins to act, at first legitimately, then from the aggrandisement of power and the "cohesive force of public plunder" the administrators of government attempt to stretch it unduly, the opposition comes to power and the same story is repeated. In each case the liberal party succeeds the conservative, acts at first wisely, then corrupted by the subtle temptations of place and power, and wishing to retain both, it becomes opposed to change and begets a new conservatism, while new liberals arise on a higher plane of evolution to continue the never-ending struggle. And it must be recollected that the conservative party of each generation is far more liberal than the one which it displaced, thus giving assurance of perpetual progress.

This has been the epitome of all American history; each party government, by whatever name it may have been known, has been liberal in comparison with its predecessor and conservative as to its successor. When Washington organised his administration it was no doubt regarded in Europe as highly revolutionary and anarchistic. But such a class government, with laws of entail and slavery, and cruel punishments for petty offences, as existed then, would not be tolerated for a single year at the present time. Thomas Jefferson who founded the democratic party, then called the republican, was a consistent opponent of aristocracy and personally was a man far in advance of his time, but most of his followers would be horrified if they should now come back to earth and see the powers possessed by the general government to-day, necessary, legitimate powers, without which the affairs of the nation could not be administered for a single week. The United States soon got rid of laws of entail and the established churches. The democracy came to power and held it nearly sixty years. Long continuance in office endeared its possession to that party while the very growth of the nation, from five millions to thirty-one millions, demanded changes in internal policy which were not forthcoming. There were not lacking signs of popular discontent. In 1840 the democrats met their first defeat, and for

three or four presidential terms the votes vibrated between the democrats and the whigs. But the latter were not united on a consistent policy. They needed a principle. The principle was shaping itself. Slavery, which had been abolished in the Northern states, was gradually strengthening in the South. The democrats forgot, or rather most of them never learned, that true democracy knows no distinction of color. The abolitionists were denounced by press and pulpit as socialists, as the disturbers of public order, as blasphemers against the very law of God contained in Holy Writ. The people, however, returned to power these same socialists and the institution of chattel slavery was doomed. That would have been the case in any event, but the civil war precipitated it, just as many other unjust wars in history have resulted in disestablishing the very institutions to perpetuate which the wars were made.

The republican party grandly and patriotically fulfilled its mission. By degrees, however, the enormous destruction of wealth during the war and the heavy debt entailed by it, created a burdensome system of taxation which substituted self-interest for patriotism. Duties were laid upon imports from abroad heavier than those which formed one of the chief causes for the revolt of the colonies against Great Britain. These duties enabled American manufacturers to make on American soil the same class of goods that were imported and charge the same price as the imported goods enhanced by the duty, of course pocketing for themselves the extra profit which the tariff aided them to obtain from consumers. The quickest way to wealth was to start some manufacture, get the government to put a tax on similar articles imported and pocket the difference, or to get an internal revenue measure passed taxing a certain line of domestic goods, pay the tax in the first instance and then charge it to the consumers with of course a good commission added for patriotic services. As long as the government had work for every man who could shoulder a musket, the pernicious effect of the system was not clearly seen. But when the war was over and one million men returned to productive avocations, wages began to fall. Then the question of taxation inevitably came to the front and has now become the living issue of the hour. The needle of the suffrage is again vibrating, the

republican party has been deprived of power for four years and the democratic President emphasised the issue by pushing the question of tariff reform to the foreground. His re-election was defeated, but the question is debated with more vigor than ever, and all signs point to absolute free trade as one of the certainties of the future. Judging from the last Congressional elections, the people have at last turned their faces in the right direction.

It will be noticed that two elements, which I have called the centripetal and the centrifugal, have been predominant in shaping American politics. They may be termed the socialistic and the anarchistic forces. Socialism claims the direction of everything by a strong centralised government. Anarchists say with the democrats, "That government is best which governs least," and logically argue for the abolition of all government. Now, the right or wrong of these principles depends upon their application. Only the most rabid anarchist would object to the Post Office, for instance, and few socialists would claim that the state has a right to regulate a man's clothing or his religion. It is on the question as to what subjects these principles should be applied that all our American parties arise. The early federalists were socialistic in that they believed in a strong central government and in relegating as few things as possible to the states. President Jefferson introduced the anarchistic or centrifugal principle of decentralisation and individualism. But as the nation grew, it was seen that this wrought injustice, especially in the matter of slavery which was a violation of human rights, however the different states might regard it. Then the socialistic or centripetal principle began to act and slavery disappeared. Now it seems likely that the individualistic principle will again become dominant in an attempt to abolish all fiscal restrictions upon trade. After this may follow the socialistic principle of state ownership of railways and telegraphs. Perhaps this will be the work of the new political forces evidently gathering, as foreshadowed by the Farmers' Alliance, after the breaking-up of parties and after the democrats, having given us free trade, will have resumed their natural position of conservatives. Then, in the remoter future, may come the anarchistic principle of the removal of the restrictions against female suffrage. And so it will go on, first one

principle acting and fulfilling its mission, then the other, each bringing the nation to a higher plane of progress and uniting it more and more closely with the grand upward march of the human race.

What is this, after all? It is not socialism. It is not anarchy. It is neither democracy nor republicanism. It is EVOLUTION. It does not depend on the temporary success of party governments for its action. It does not even solely result from our unique position or our independence wrested from Great Britain. Back of it lie the broad principles of British liberty, of common law, of Magna Charta won from King John on the plains of Runnymede. Back of it is the great wave of democracy arising out of the darkness of the Middle Ages. Back of it are the injunctions of Him of Galilee who taught the natural law as no man ever taught before. Back of it is Roman jurisprudence and Greek art and culture and the early efforts of the days when Cadmus brought the alphabet to Europe with his Phœnician colony. Indeed, back of it lies the primeval impulse of the first man, God-endowed, ape-descended, who stood upon his feet and began to think. We may carry our thoughts still further to the times when the red sunlight first filtered through the thick clouds upon an uninhabited world, and still further may we go in thought into the ages of eternity, and assert with fullest confidence that the principles of progress to-day working themselves out in politics are but the reflection of the divine ideals founded in the laws of nature.

Can the course of such progress be turned back? Can we despair of the future in the light of all the past? Is not the general movement onward and upward? Will not the sneers at ephemeral phases of our American politics pass away with the incidents which they justly condemn, while the principles of progress remain forever?

THOMAS B. PRESTON.

ARTIFICIAL SELECTION AND THE MARRIAGE PROBLEM.*

BY artificial selection I mean all conscious and purposive arrangements between men and women which have in view character of offspring. This is opposed to natural selection which is merely instinctive unteleological union with one of the opposite sex as impelled by animal passion or romantic love. All sexual union among the lower animals is by natural selection; they do not forecast consequences, and by conforming to known laws determine consequences. Among the lower races of men natural selection is the sole or at least dominant factor in marital matters, but as civilisation advances artificial selection becomes a more and more powerful element. A truly thoughtful and intelligent man in our day in view of marriage will most carefully consider his own life history and that of his parents and ancestors, and also that of his intended partner and her ancestors, as to physical or mental disease, which might be handed down to the issue of the proposed union. He

*In an article in *The Arena* for June, 1890, I endeavored to plainly set forth the renewal of society from its lowest elements as the greatest disease in our social life, and to show that the remedy lies in a thorough application of science to human breeding. Just how this application was to be made I did not state, for I did not include this in the scope of my discussion. Mr. Stead in his *Review of Reviews* for July, 1890, and Mr. Wallace in the September *Fortnightly Review* and October *Popular Science Monthly*, 1890, have drawn inferences on this point which I am not prepared to allow. Mr. Stead speaks in headlines and in text of "murder, mutilation, or imprisonment" as the methods which I hint at, and Mr. Wallace remarks upon my views "that such interference with personal freedom in matters so deeply affecting individual happiness will never be adopted by the majority of any nation, or if adopted would never be submitted to by the minority without a life-and-death struggle." It seems incumbent then on me to state more clearly what I understand by artificial selection, and what forms of it are most expedient at the present time.

would not, for instance, marry into a family which has a tendency to consumption or insanity, for this would be a crime against his possible descendants. Further, this growth of artificial selection with the progress of society is manifest not only as regards individual action but by state regulation. Even in barbarous states it soon becomes evident to the leaders that if strong healthy men are to be had to defend and maintain the nation, strict attention must be paid to the character of those who marry. In Sparta and other ancient states this principle was recognised, and modern governments seek in many more or less indirect ways to encourage marriage between the most fit, so that good citizens and warriors may be raised up to serve the state. All this regulation of marriage by either individual or state action which looks to the character of offspring I term artificial selection.

In the evolution of man as a rational animal artificial selection will more and more prevail, and human breeding will become a well defined art. Man is always artificial,* and it is his goal to become in all his life unnatural and thoroughly artful. There can ultimately be no *laissez-faire* policy as to marriage or any other institution. The history of marriage is the history of the gradual retirement of natural selection; but art has come in here more slowly than in other relations of life owing to tremendous conservatism and the power of human passion. But the time has now come when man must more than ever before attend by artificial selection—that is, purposed care—to the perpetuation of the species in the line of its true advancement, spiritual achievement. I do not now see how the necessity of artificial selection can be gainsaid by any one who takes a broad view of the evolution of the race.

The methods of artificial selection are either negative, which restrain the unfit from propagating, or positive, which encourage the fit to propagate. The most radical negative method is mutilation, and is employed by man with the lower animals and with slaves, but this plan could hardly be used by civilised society

* By artificial I understand not what is unnatural or against nature but that which is after conscious deliberation more in accord with the laws of nature. It is a higher degree of the natural.

for human breeding. Imprisonment temporarily restrains some classes of society from perpetuating themselves. Prevention of conception is at present mostly a voluntary means, but accomplishes the elimination of both fit and unfit. Celibacy of monk and nun, of bachelor and maid, works also in both directions. In many indirect ways society discourages from marriage those whom it supposes to be unfit as tested by wealth, rank, or birth.

It is not, however, so much by the extension of any negative methods, but rather by positive means that artificial selection may be best employed. I will mention three forms by which human breeding might be materially advanced.

By common law and custom the wife surrenders herself physically to submit and morally to obey the husband. This is not for the most part harshly and literally carried out in civilised countries; still there is a vast deal of oppression which is hidden from all eyes, and which is often passively received by women as her rightful lot. This again is a subject upon which delicacy—perhaps unwise—forbids free discussion, but its bearing is manifest. If women have the choice to bear or not to bear, and she with educated conscience choose by fitness of offspring, a large and powerful element of artificial selection may be introduced. Again all governments have laws concerning marriage which act in general toward encouraging the fit. Certain conditions as to age, etc., being fulfilled, the state grants a marriage licence, and public opinion might easily be led to make the requirements more stringent. As a physician has suggested to me a certificate of health from an approved medical examiner might be required of all applicants for legal marriage. This would certainly be a strong measure of artificial selection, and would save much misery springing from ignorance and vice. It surely seems scarcely fitting that those who cannot pass an examination for life insurance freely contract marriage with view to issue.

But the plan of artificial selection which seems to me most feasible at the present time would be voluntary associations of men and women who bind themselves to learn and apply the laws of heredity in their marriage relations, to seek for expert guidance, and in all their life to live not merely purely, but according to reason and

science. Heredity societies of this stamp which should favor marriages only between members would ultimately become a rational aristocracy, and true and good blood would be perpetuated in the best manner. There is much, indeed, to be done in the science of heredity, especially as regards laws of transmission of mental and moral qualities,* but still we have even now a sufficient basis of knowledge to make the experiment well worth trying.

Many objections can be raised to such schemes. For instance, it will be said that they might assure us of obtaining men of talent, but we should forever lose men of genius. If such societies were in vogue in the Elizabethan period, we might never have had a Shakespeare. What likelihood that a scientific expert would advise the marriage of John Shakespere and Mary Arden! I answer that we should have had a dozen Shakesperes instead of one. The law of the production of geniuses is not beyond human ken. Maud S. is truly a genius in horseflesh, but she came into the world in no fortuitous or instinctive way, but by scientific breeding. The applicability of similar foresight in breeding men would produce geniuses in abundance. It may not be accomplished in an exactly analogous manner, an expert leading around eminent men to "make the season," but the analogous practical results will nevertheless be obtained.

Another objection which might be urged is that any such scheme would seriously diminish population. True; but what thoughtful man applies the numerical test to the progress of the race! It is not quantity of citizens but quality, which constitutes the true greatness of states. The counting of heads instead of what is in heads, is a mistake into which democracies are peculiarly apt to fall. Were all men exactly equal a census would be a true test, but considering the tremendous inequalities in humanity it is sheer folly for a country to glory in the number of its adherents, or a sect in the number of its adherents, or a city in the number of its citizens. Civilisations are weighed down and ultimately crushed by the dead weight of the masses. The barbarian is not without but within the civilisation. By recent inquiries in New York and Chicago the slums appear to

*See my remarks on this point in *Nature*, Oct. 31, 1889.

be five times as prolific as the most aristocratic portions; and while good may come from the lowest born, and bad from the highest born, still the chances are decidedly in favor of the high born. A few rise above the level of their birth, a few sink below it, but the great majority of men remain for their lives on the general level of society in which they were born. The United States would be a greater nation with 10,000,000 choice inhabitants than with ten times 10,000,000 of the ill bred and low bred. Athens by the vulgar test of numbers was but a small and mean city, but in true greatness as revealed in far reaching spiritual power, she stands in the very forefront.

Again it will be objected that scientific schemes for human breeding would inevitably destroy that beautiful flower of Christian civilisation, the poetry and romance of love. Sentiment and chivalry would wither, and brutality and cold calculation would supplant all tender and refined emotion. I should answer that the true refinement which refuses to obtrude the things of sense, and true purity which refuses to dwell on them salaciously, are perfectly compatible with the fullest knowledge and the consequent action. Lubricity breeds best upon a half knowledge acquired in dubious ways. A serious practical scientific treatment of this subject will not glorify the flesh with the fierce gusto of Walt Whitman, nor, with the Zola school, dwell upon animalism with the morbid detail of a heated imagination; but it will bring into the clearest light the laws of sex and the rules for the development of the human race into the perfect man. These laws of nature, which science reveals, are laws of duty and laws of God, and when once appropriated as such by Ethics and Religion, they will become the basis for all that is high in emotion and chivalrous in action.

In that most vital of matters, human breeding, man is far behind his progress in all other spheres of action; but here as elsewhere Science must enter, not to destroy but to fulfil, to build up manhood and womanhood into the perfected relations which can only come from rational action, illuminated by complete knowledge, and sanctioned by noblest sentiment.

HIRAM M. STANLEY.

THOUGHT AND LANGUAGE.

I HAVE read with interest Prof. Max Müller's paper on the above subject in the current issue of *The Monist*, not only because it is in large part devoted to a consideration of my own work on "Mental Evolution," but still more because the explanations which it supplies touching certain points of disagreement between us appear to show that I have not misrepresented his statements, even if, as he alleges, I have misapprehended his meanings.

The work to which allusion has just been made was published in 1888, and, as far as I am aware, it is only now that Prof. Max Müller has sought to meet my views as there expressed. Hence we may take it that his answer is, at all events, well matured. Furthermore, we may take it, from the tone in which his answer is conveyed, that he credits me with having had at least an honest desire to understand, and accurately to represent, his meaning in all the places where I have ventured to criticise it. It appears, however, that at all events in one important respect I have betrayed "a complete misapprehension" of his meaning—viz. with reference to his "theory of the origin of roots" (*The Monist*, p. 582); and it is for the purpose of correcting this misapprehension that he has published the latter half of his present paper. My reply, therefore, must take the form of excusing myself for the complete misapprehensions which are alleged.

It is desirable at the outset to emphasise a distinction which I was careful to draw in my work on "Mental Evolution in Man"—that, namely, between philology and philosophy. A man may be an excellent authority on the "Science of Language," and yet but

a very indifferent writer on the "Science of Thought." On the other hand, a man may know nothing at first hand touching the special province of a philologist, and nevertheless be fully capable of criticising what a philologist has published in the way of theoretical deductions from his facts—especially where these deductions quit the sphere of philology, and soar into that of Darwinian, or anti-Darwinian, speculation. This distinction, indeed, between the particular science of philology and the general scope of philosophy, Prof. Max Müller himself recognises where he says: "While the student of language seems to me to have a perfect right to treat the roots of language as ultimate facts, it is difficult for the philosopher not to look beyond." (*The Monist*, p. 579.) Nevertheless he complains of me because, while accepting all his philological facts upon his authority as a philologist (save in so far as they are not accepted by other philologists), I have been obliged to express dissent from not a few of his theoretical deductions—especially, as I have already indicated, where these have reference to the general doctrine of evolution as applied to the mind of man. But how, I may ask, could a treatise be written on "Mental Evolution in Man," or "The Origin of Human Faculty," without considering the results which have been gained by the science of comparative philology? Or how can it be maintained that, in order to deal with these results in relation to the general theory of descent, a writer must first of all himself become an authority in that particular science? At any rate, I deemed it enough for the only purposes which I had in view, to read attentively all the leading authorities in this science, and, after extracting from them the information upon matters of fact which their researches had established, to show what I regarded as the bearing of these facts upon the theory of mental evolution. Nor can I plead guilty to the charge of arrogant presumption, which the following words appear to convey:

"We see in his case how dangerous it is for a man who can claim to speak with authority on his own special subject, to venture to speak with authority on subjects not his own. Professor Romanes has, no doubt, read several books on philology and philosophy, but he is not sufficiently master of his subject to have the slightest right to speak of men like Noiré, Huxley, Herbert Spencer, to say nothing of

Hobbes, with an air of superiority. That is entirely out of place." (*The Monist*, p. 383.)

Now that any such "air of superiority" occurs in my book, I must deny—and this is a matter of fact. Noiré is alluded to only with reference to his theory of the origin of language, which I go further in accepting than does any "philosopher" or "philologist," with the single exception of Prof. Max Müller himself. Huxley is mentioned in several places as a leading authority on anatomical matters, where my argument requires an authoritative statement upon them. Herbert Spencer, curiously enough, is never mentioned at all; while Hobbes is named only once, and then as sustaining, by a "shrewd analysis," an opinion which I am advocating by quotations from recognised authorities in philosophy. Truly, therefore, it would be well for my critic "to say nothing of Hobbes"; and better still if he had looked at my index before condemning my supposed treatment of Herbert Spencer, Huxley, and Noiré. As it is, his allusion to these names "is entirely out of place."

But even apart from this particularly unfortunate allusion, his more general charge as to my "venturing to speak authoritatively on subjects not his [my] own," is equally out of place. The following is my introduction to the chapter on Comparative Philology, and I cannot see that it betokens any "air of superiority":

"In now turning to this important branch of my subject, I may remark, *in limine*, that, like all the sciences, philology can be cultivated only by those who devote themselves specially to the purpose. My function, therefore, will here be that of merely putting together the main results of philological research, so far as this has hitherto proceeded, and so far as these results appear to me to have any bearing upon the 'origin of human faculty.' Being thus myself obliged to rely upon authority, where I find that authorities are in conflict, I will either avoid the points of disagreement, or else state what has to be said on both sides of the question. But where I find that all competent authorities are in substantial agreement, I will not burden my exposition by tautological quotations."

* * *

Having thus disposed of a merely personal matter, I may pass on to my justification of the "complete misapprehension" into which I have fallen with respect to Prof. Max Müller's work on the "Science of Thought."

In the first place he tells us:

"On page 267 Mr. Romanes says that I profess, as a result of more recent researches, to have reduced the number of Sanskrit roots to 121. I wish I had. But the number of roots in Sanskrit stands as yet at about 800: the number 121 of which he speaks is the number of concepts expressed by these roots, many of them conveying the same, or nearly the same, idea." (*The Monist*, p. 583.)

Now it is quite true that on page 267 I made the statement which is here challenged; but as I immediately go on to speak repeatedly of the "number 121" as being "the number of concepts expressed by the roots,"—and actually quote at length the whole 121 concepts with Prof. Max Müller's own heading,—I am not sure that the point is worth the stress which is now laid upon it. Nevertheless, I may explain why in this one passage I used the word "roots," instead of the word "concepts." Briefly, the only reason was because, according to Prof. Max Muller's theory of the origin of roots, it seemed to me virtually the same thing, from a psychological point of view, whether we speak of the reduction in question as pertaining to roots or to concepts. For, according to the theory, "every root embodies a concept," or is the obverse side of a concept. Consequently, if the Sanskrit language presents some 800 roots, while it is expressive of only 121 concepts, the balance of the 800 roots must be concerned in conveying the same, or nearly the same, ideas—as Prof. Max Müller himself expressly asserts in the above quotation from *The Monist*. Indeed, the whole object of his psychological analysis of linguistic roots was to prove that such is the case; and, therefore, that the 121 roots which serve to convey the 121 concepts are the only roots required for the purposes of communication in Sanskrit speech. No doubt it would have been better if I had stated all this in my book; but even if its omission led to obscurity, I can scarcely see that on this account there could have been a "misrepresentation" where there was certainly no "misapprehension." For, as already stated, I spoke of "121 roots" only once, while I alluded to "121 concepts" many times—and usually, moreover, in inverted commas. Lastly, it may be observed that, following his theory concerning the "origin of roots," Prof. Max Müller himself so far identifies roots with concepts as to

head one of his lists, in large capitals—ROOTS OR CONCEPTS. Therefore in saying that he professed to have reduced the psychologically efficient elements of Sanskrit speech to 121 constituents, it did not appear to me that I was departing from his own terminology when in one passage I spoke of these 121 constituents as roots, while everywhere else I spoke of them as concepts. "Give us," he says, "about 800 roots, and we can explain the largest dictionary; give us about 121 concepts, and we can account for the 800 roots." ("Science of Thought," p. 551.) Well, if this is so, the 800 roots (i. e. phonetically separable elements) have been reduced to the 121 "concepts or roots" (i. e. psychologically separable elements). My critic cannot both have his cake and eat it. Either he must abide by the philological meaning of a root, as the ultimate result of philological analysis; or else he must abide by his own philosophical meaning of a root, as the embodiment of a concept. Under the former definition there will be about 800 roots of Sanskrit; under the latter definition, and according to his analysis, there will be only 121.

* * *

The next point with regard to which "complete misapprehension" is alleged may best be presented by my critic's own words, thus:

"Professor Romanes thinks it necessary to remark that 'these concepts do not represent the ideation of primitive man'! I never said they did. I never pretended to be acquainted with the ideation of primitive man. All I maintained was that, making allowance for obscure words, every thought, that of the lowest savage as well as of the most minute philosopher, can be expressed with these 800 roots, and traced back to these 121 concepts." (*The Monist*, p. 584.)

Now, it is perhaps needless to say, I am extremely glad to learn that such was the meaning intended; but I trust that the following quotations will furnish a sufficient excuse for my misunderstanding of it:

"I hope that those who will carefully examine the results at which I have arrived, will admit that they prove by overwhelming evidence that the meanings of roots are really what we expected them to be, and that they express the primitive social acts of primitive social man, and the states more or less closely associated with such acts." ("Science of Thought," p. 403.)

From this it appears that if Prof. Max Müller never professed to be acquainted with the ideation of *primitive* man, he did profess to have proved, by overwhelming evidence, a very large acquaintance, not only with the ideation, but also with primitive acts of primitive *social* man. Possibly his acquaintance with both these matters is very much more intimate than mine; but as I have always taken it to be virtually certain that "primitive man" was "social" in his habits, I should like to learn the reasons which have induced my critic to believe in a still more "primitive man," who was addicted to a solitary mode of life. For, otherwise, the only distinction on which his criticism appears to rest is a distinction without a difference.

Again he says:

"The Science of Thought assures us that every thought that ever crossed the mind of man can be traced back to about 121 simple concepts." (Ibid, p. 418.)

And that the word "man" here is not intended tacitly to exclude "primitive man" (whether "social" or solitary), I gathered from the fact of the 121 concepts in question being tabulated under the heading, in large capitals, THE 121 ORIGINAL CONCEPTS. For, if the word "original" here was intended to mean original only with reference to the Sanskrit language, why did the writer follow it up with his statement about the Science of Thought, assuring us that *every* thought which had *ever* crossed the mind of *man* could be *traced back* to these 121 original concepts?

Lastly, not only by such particular passages was I led to suppose that the writer was referring to "primitive man" when he was writing about "primitive social man," etc.; but still more was I led to suppose this by the whole drift and tenor of his work. For what would be the sense of all his disquisitions upon the importance of linguistic science in its relation to the theory of evolution, if he intended to restrict his inferences to the *semi-civilised* condition of man, which (as he allows) must have been the condition of the speakers of Sanskrit? Clearly, if this were his intention, there would have been *no* sense in all these disquisitions; and therefore, here again, my critic cannot both preserve his cake and consume it. Either let him adopt the position which he takes up in *The Monist*, as a

philologist pure and simple, who "never pretended to be acquainted with the ideation of primitive man," who refuses to go beyond the "facts" of the "Science of Language," or to speculate upon their theoretical relations to the "Science of Thought": or else let him do as he does in his published works—superimpose upon his functions as a "Student of Language" the functions of a "Philosopher," freely speculate upon "the origin of roots," elaborately argue the whole psychology of "concepts," and strenuously endeavor to show that "language is the Rubicon of mind," which not only now, but at all times, has separated man from the lower animals, as a being mysterious in origin, if not unique in kind.

* * *

Next we are told:

"Professor Romanes dwells on what he calls the interesting feature of all roots being verbs. This is simply a contradiction in terms. In giving the meaning of roots scholars generally employ the infinitive or the participle, "to go," or "going"; but they have stated again and again that a root ceases to be a root as soon as it is used in a sentence." (*The Monist*, p. 584.)

Now, by a "verb" I understand a word that signifies either an action or a state; and by a "root" I understand—here agreeing with Prof. Max Müller himself—"an element of human speech," so far as this has been hitherto reduced by philological analysis. Again, I hold—in this also agreeing with him—that "as soon as a root is used for predication it becomes a word, whether outwardly it is changed or not." ("Science of Thought," p. 440.) Well, if we are agreed upon these points, I do not see how there can be any "contradiction in terms" when I stated the fact "of all roots being verbs."

In the first place, if one were to agree with Prof. Max Müller himself in holding that originally every root was "something real, something that was actually used in conversation" (Ibid. p. 420), there can be no contradiction in terms if we translate this into saying that originally every root was a word—for the mere quibble that not until it was spoken did the root become a word does not affect the matter, any more than if we were to say the same of any word now in use, which has given birth to a progeny of other words. But even if we disagree with Prof. Max Müller, and suppose that roots

are merely "phonetic elements," or the residual extract of a group of originally allied words, we should still be correct in saying that the "concepts" which they "embody" are all concepts which now admit of being expressed in equivalent words.

So much for the "contradiction in terms," which is alleged to arise if we speak of roots as *words*. Touching the second point, or the accuracy of saying that the words which roots express are always *verbs*, my defence is sufficiently easy. For to say, as my critic says, that "in giving the meaning of roots scholars generally employ the infinitive or the participle," appears to me a most unphilosophical observation, since it appears to indicate that in the opinion of its writer the significance of a verb is but conventionally given to a root by the verbal form into which it is thrown by scholars. But the fact is that, even if they tried, scholars could rarely deprive a root of its significance as a verb, no matter into what verbal form they might choose to throw it. Take any root at random, such as HA *to go*. However much we may ring the changes, as "to go," "going," "goer," it is impossible to get rid of the fundamental significance of the root as a verb. And although it is, of course, possible to select a root which presents a more equivocal interpretation, the cases in which this can be done are, comparatively speaking, not numerous, and apparently never such as to exclude the probability of its having primarily conveyed the force of a verb. For instance, HUR *to fall*, may be regarded either as a verb or a noun-substantive; but we cannot say that there is anything to render more probable the view of the root having been originally expressive of a fall than of the act of falling; and inasmuch as there do not appear to be any roots which *can* only have originally had the force of nouns or adjectives, while there are so many which *can* only have originally had the force of verbs, we may fairly conclude that in the accidentally more equivocal cases the roots were likewise originally expressive of actions or of states. For, if not, why are there not as many roots which convey such meanings as *sky*, or *blue* (which never can have had equivalents in the forms of verbs), as there are roots like HA, where we cannot doubt that the meaning from the first must have been the meaning of a verb?

I am the more surprised at this head of Prof. Max Müller's criticism, because it belongs to the very essence of his own theory touching "the origin of roots," that they *must* all originally have conveyed the meaning of verbs. Therefore from end to end of his own book he constantly alludes to roots as expressive of "actions"; never as expressive of objects or qualities. For instance:

"All, or nearly all, the roots of Sanskrit, or rather of the Aryan family in general, express, as we shall see, acts, and more particularly the commonest acts performed by members of a primitive society." ("Science of Thought," p. 272.)

And even in *The Monist* article itself the same thing is stated thus:

"Let us remember that a most careful psychological analysis had led Noiré to the conclusion that the germs of all conceptional thought were to be found in the consciousness of our own repeated acts. And let us place by the side of this, the well-ascertained fact that the germs of all conceptional language, what we call roots, express with few exceptions the repeated acts of men." (*The Monist*, p. 580.)

Again:

"We begin with the fact that the great bulk of a language consists of words, derived, according to the strictest rules, not from cries, but from articulate roots. No one denies this. We follow this up with a second fact, that nearly all the roots express acts of men. No one denies that." (p. 588.)

Very well then, I submit that the only real distinction between Prof. Max Müller's rendering of this "fact," and my own rendering of it, consists in my having added "states" to "acts," and observing that then the comparatively few outstanding roots may be included with the "nearly all" under the one category of "verbs."

For the distinction which he draws in *The Monist* is not a real distinction: it is merely a verbal distinction.

Here it is:

"If Professor Romanes approves of my saying that roots stood for any part of speech, just as the monosyllabic expressions of children do, I can only say that, if I ever said so, I expressed myself incorrectly. A root never stands for any part of speech, because as soon as it is a part of speech it is no longer a root." (*The Monist*, p. 585.)

This, as I have previously observed, is merely a quibble. If originally every root was "something real, something used in conversation," originally all roots were *words*, in just the same sense

as "the monosyllabic expressions of children" are words. And if "nearly all these roots express the acts of man," while most (if not all) the outstanding residuum were apparently expressive of states, it follows that the roots in question were not only words, but *verbs*. And in stating this "fact" I supposed that I was but following Prof. Max Müller's statement of it, where he constitutes it the philological basis of his theory on the "origin of roots"—viz. that all roots sprang from sounds made by "primitive social man" when engaged in their "social *acts*." But, while accepting this fact, I objected to the theory raised upon it, because the latter did not consider that roots which originally had the force of verbs must have been more likely to have survived, and so to have come down to us, than those which may originally have had the significance of any other parts of speech. And it was only in order to supply this further consideration that I alluded to the "fact" at all.

* * *

We come next to some disparaging remarks upon "babies," "parrots," and the lower animals generally (*The Monist*, pp. 586–7). Prof. Max Müller "refuses to argue" with me, "or any other philosopher, either in the nursery or the menagerie." So be it. As a philologist, of course, he is assuredly right; no one would expect him so to argue. But as a philosopher, who has written a large book on the "Science of Thought," he is no less assuredly wrong. And one may be pardoned for wondering at this intentionally ostrich-like attitude on the part of a philosopher—who is "going beyond the origin of roots"—with respect to the fundamental germs of the sign-making faculty.

Again, my critic appears to imagine that I am a supporter of the onomatopoetic theory—to the extent of regarding *all* human language as having originated in imitations of natural sounds. (*The Monist*, pp. 586–7.) But over and over again I have stated that this is not my view. I believe, indeed, that there is a very large amount of truth in this theory; but I deem it on all grounds most improbable that the principle of imitation has been the *only* principle concerned in the origin of speech. I have argued that probably

many other principles must have been concerned, including the "synergastic" principle suggested by Noiré, and enthusiastically adopted by my critic as alone sufficient to explain the whole problem of the origin of speech—and this although it is clearly but a particular branch of the general onomatopoetic theory. Hence, so far as I am concerned, it does not signify one iota whether any given root owed its origin to the principle of imitation, or to some other of the general principles which I believe to have been concerned in the birth of articulate language. And, if possible, still less does it signify whether or not in the development of any given word, such as "thunder," the original root-sound has been afterwards imitatively modified, "from a feeling that it should be so." These matters are no doubt of importance within the four corners of philology; but in relation to the "biological theory" of descent they present no importance at all.

Yet I am told:

> "Those who cannot see the difference between a man, or for all that, between a mocking-bird, saying *Cuckoo*, and a whole community fixing on the sound of TAN, as differentiated by various suffixes and prefixes, and expressing the concept of stretching in such words as *tonos*, *tone*, *tonitru*, *thunder*, *tanu*, *tenuis*, *thin*, should not meddle with the Science of Language." (*The Monist*, pp. 588–9.)

Doubtless. But as no word of this applies to me, I may be permitted to observe that if any one who has read my book can possibly suppose that it does, he should not meddle with the Science of Thought.

* * *

In conclusion, if it be the case that I have completely misapprehended Prof. Max Müller with regard to the points which he has mentioned,—and all of which I have now considered,—have I not furnished sufficient justification? Even now I cannot see in what respects it is possible to amend any subsequent edition of my book, so as to correct the misapprehensions which are alleged. But although my "mistakes" are thus far from "clear," I am glad to have had this opportunity of publicly discussing them with Prof. Max Müller, if only for the sake of adding the following remarks.

Be it observed, in the first place, that whatever may be thought

of the foregoing "justification,"—whether it be held that the misapprehensions are due to ambiguity on the one side or to obtuseness on the other,—at least it is certain that the misapprehensions complained of all have reference to points of no importance whatsoever as regards the general theory of descent, even although some of them are not altogether without importance as regards the particular science of philology. Thus it is quite immaterial, so far as the doctrine of *Mental Evolution* is concerned, whether we say that the roots of Sanskrit are 800, philologically speaking, or 121, psychologically speaking. Again, as soon as it is explained by Prof. Max Müller that by his "121 original concepts" he means the number of concepts "original" only as regards the Sanskrit language; that by "primitive social man" he means only the semi-civilised progenitors of the Indo-European race; that by "every thought that ever crossed the mind of man" admitting of being "traced back to about 121 simple concepts," he means no more than that such is the case as regards the recent and highly evolved Aryan branch of the human species;—when once all this is explained, it becomes evident that thus far there *can* be no difference of opinion between us. For in that case he is not dealing with "the Origin of Human Faculty," either in regard to language or to thought: he is considering merely the higher inflorescence of both. Once more, whether all, or nearly all, the roots of Sanskrit can properly be called *words*, and, if so, whether we must not go still further and call them *verbs*, —these are questions of mere terminology. If the roots were originally "used in conversation," and if, as thus used, they were, with but few doubtful exceptions, all expressive of "acts" or "states," it becomes mere verbal hair-splitting to challenge the propriety of saying that the roots were originally verbs. At all events, the matter has nothing to do with the general question of man's derivative origin. Lastly, the same has to be said of the purely philological question as to how far the principle of imitation has obtained in the first formation of these archaic "words," or "roots." For, archaic though they be in a philological sense, in a phylological sense they are things of yesterday, and so can scarcely be said to have any direct relation at all to "the origin of speech," or the rise of articu-

late sign-making. This has to be inferred from observations in the 'menagerie," as distinguished from research in the library; and the fact that Prof. Max Müller expressly refuses to give me the pleasure of his company where the best materials for studying the really "primitive" condition of the sign-making faculty are to be met with, merely renders more impossible than ever any real collision between his linguistic studies on the one side, and my "biological theory" on the other.

But although it thus appears sufficiently evident that my "misapprehensions" of his linguistic conclusions are as unimportant in relation to the theory of descent as they are few—and, I think, also excusable—in themselves, it is impossible to doubt that far below the level of Sanskrit roots, and far beyond the range of philological science, there is a wide difference of opinion between us. For when he passes from the "Science of Language" to the "Science of Thought,"—when he quits his sphere as a philologist to enter that of the philosopher,—he persistently and consistently affirms that what he calls "the old barrier between man and beast" remains, and that he is as yet unable to perceive how it can ever be removed. This barrier of course is predicative language—the obverse side of conceptional thought; and the firm opinion thus expressed by so eminent a philologist is not only of weight *per se*, but is rendered more so on account of the manifest freedom from prejudice with which it is associated. It is on this account that I devoted so much space in my book on "Mental Evolution" to a consideration of his views; and therefore I am sorry that his present reply has not been directed to meeting my criticisms on this really important matter of philosophical doctrine, rather than to indicating "misapprehensions" with regard to such merely trivial matters of a purely philological kind as those which I have here been dealing with. But perhaps at some future time he may give me the benefit of his criticism upon my work as a whole, or not merely on the fringes of such details as really have no bearing on the objects of that work.

And, if he should ever see his way to doing this, I am quite sure that the discussion would be one of a friendly character. For the points at issue would all have reference to that large and vague

domain of speculative theory touching "the origin of human faculty," where it is inevitable—and, in my judgment, even desirable—that wide differences of opinion should obtain. We are but at the commencement of a great and obscure problem, which only in our own generation has been presented by the science of biology to the contemplation of philosophy. Therefore it would be folly indeed if any man were to regard his own opinions upon it as other than provisional—and even more foolish if he were to introduce any "*meum* and *tuum* into these discussions."

Thus I invite Prof. Max Müller to state the grounds of his assertion in *The Monist*, that "all the facts of real language are against" me as an advocate of what he calls the biological theory of the developmental origin of man. This theory, he says, "derives no support whatever from the Science of Language." I believe, on the other hand, that these are wholly unwarranted statements; and that the Science of Language does support the theory in question to as high a degree as is possible from the nature of the case. On account of this great difference of opinion, I felt, when writing my book, that I should be doing but scant justice to the matured judgment of so eminent a philologist if I did not carefully consider all that he had written upon the subject. And so, as I have said, I devoted more of my book to a consideration of his views than to those of any other philologist; and while accepting his scientific facts on his authority as a philologist, I nevertheless felt it incumbent on me to show why his philosophical deductions, where they had reference to the theory of descent, appeared to me by no means of equivalent value. This distinction, as I observed at the commencement of the present article, is surely a legitimate distinction; and I should be sorry indeed if anything that I have ever said can appear inconsistent with the genuine admiration which is due to Prof. Max Müller as "a student of language," or with the no less genuine esteem which I have the best reason for knowing is due to him as a friend.

GEORGE. J. ROMANES.

THE CONTINUITY OF EVOLUTION.

THE SCIENCE OF LANGUAGE VERSUS THE SCIENCE OF LIFE,

AS REPRESENTED BY PROF. F. MAX MÜLLER AND PROF. GEORGE JOHN ROMANES.

ALL the sciences form, or at least ought to form, one great system, culminating in the science of sciences. Therefore it is more than doubtful how any science could exist without being somehow in contact with other sciences; and all of them must stand in some relation to philosophy. It is necessary that each science should develop in relative independence of the other sciences. We cannot expect to decide, for instance, chemical problems by physical or purely mechanical laws before we have carefully searched the nature and conditions of chemical processes. But as soon as this has been done we can expect that a comparison between the results of two or more sciences will throw new light upon the subject-matter on both sides. Solomon says: "To everything there is a season and a time to every purpose under the heaven." Thus the sciences have to grow, each one on its own grounds, and when they have reached a certain state of maturity, they will coalesce with each other. And two sciences will by their coalescence fertilise the one the other so as to produce a new department which may by and by develop into a special science.

Now it appears to the uninitiated as if the spiritual world of science were in every respect different from the world of objective realities around us. While in the world of bodily realities the struggle

for existence is fought eternal peace is supposed to reign in the sacred halls of intellectual aspirations. Says the German poet:

"Hart in dem Raume stossen sich die Körper,
Leicht bei einander wohnen die Gedanken."

This is true only in a very limited sense. Ideas are the most intolerant beings imaginable. The struggle for existence is raging as fiercely in the intellectual realm as in the world of realities, and there also the law that the fittest will survive holds good.

Far be it from us to denounce this state of general warfare, for although it is hard on those who succumb, it is the means by which evolution becomes possible; and evolution in the domain of science means a nearer approach to truth. If in the evolution of thought two neighboring sciences have developed so far as to meet, a struggle will ensue. The ideas on the two sides will have to fight before they coalesce. It is natural that different scientists look at things from different standpoints. They have developed a terminology which exactly suits their purpose and thus the representatives of the different sciences are often like people of a different nationality. They do not understand each other because they speak different languages. Moreover they have not unfrequently a different religion; that means, their ideas about truth and the test of truth appear to be different and sometimes they regard one another as no better than heathens. The battle is unavoidable, and considering all in all, the battle is desirable, it should not be avoided. The fittest to survive being the truest, the whole progress of science through the struggle for existence among ideas consists in the approach to truth.

It may be objected that there are peacemakers who will reconcile the contending parties. True. And it is further true that the aim of every war is peace. But a peacemaker can be successful only if his mind is broad enough to let the whole battle be fought out within himself. The battle itself is and will remain unavoidable. Idea stands against idea, and the mental process of reflection is nothing but a struggle of conflicting ideas which takes place in one and the same mind. The aim of all reflection is the settlement of the conflict, so that all ideas will agree. The two parties disappear

in one; errors are given up, and that which is consistent only will remain. In other words Dualism makes room for Monism.

It is a good sign of the times that a battle has begun to rage between the so-called natural sciences and the science of language. The old Hegelian distinction between the *Geisteswissenschaften* and the *Naturwissenschaften* has been surrendered; and Prof. F. Max Müller was among the foremost to inculcate the truth that philology is a natural science. If philology is a natural science it cannot be but that its subject of investigation is a part of nature and as such it stands in close relation to other parts of nature. One and the same thing may be the subject of investigation of different sciences. One and the same plant may be an object of observation to the physiologist, to the botanist, to the druggist, to the physician, and to the chemist. Their standpoints and their purposes being different, they will bring to light very different results, and if these results are contradictory among each other the conflict is at hand. It cannot be shirked but must be decided by an honest and square fight. We have witnessed of late a conflict between philology and anthropology concerning the origin of the Aryas and it looks as if this conflict will contribute much to promote our knowledge of the oldest history of mankind, although the last word has not as yet been spoken: *adhuc sub judice lis est.*

We are now confronted with a conflict between Philology and Biology. The first skirmishes have been fought by two men who are entitled to speak, each one in behalf of his science. Prof. F. Max Müller stands up for philology and Prof. George John Romanes for biology.

Professor Romanes takes it for granted that the rational mind of man has developed gradually from the lower stage of the brute. He says in his book "Mental Evolution in Man," p. 276:

"The whole object of these chapters has been to show, that on psychological grounds it is abundantly intelligible how the conceptual stage of ideation may have been gradually evolved from the receptual—the power of forming general, or truly conceptual ideas, from the power of forming particular and generic ideas. But if it could be shown—or even rendered in any degree presumable—that this distinctly human power of forming truly general ideas arose *de novo* with the first birth of

articulate speech, assuredly my whole analysis would be destroyed: the human mind would be shown to present a quality different in origin—and, therefore, in kind—from all the lower orders of intelligence: the law of continuity would be interrupted at the terminal phase: an impassable gulf would be fixed between the brute and the man."

And Prof. Max Müller criticises the position of Professor Romanes in an article on Thought and Language (*The Monist*, Vol. I. No. 4, p. 582); he says:

"My learned friend, Professor Romanes, labors to show that there is an unbroken mental evolution from the lowest animal to the highest man. But he sees very clearly and confesses very honestly that the chief difficulty in this evolution is language and all that language implies. He tries very hard to remove that barrier between beast and man. . . . . Professor Romanes is, I believe, a most eminent biologist, and the mantle of Darwin is said to have fallen on his shoulders. Far be it from me to venture to criticise his biological facts. But we see in his case how dangerous it is for a man who can claim to speak with authority on his own special subject, to venture to speak authoritatively on subjects not his own."

It is not at all my intention to appear on the battle-field as a peacemaker between these two generals, or to settle the problems that arise from the conflict between philology and biology. That will be better done by the parties concerned, and I am rather inclined to speak with Schiller when he thought of the struggle between the transcendentalist philosopher and the empirical naturalist:

"Enmity be between you! Your alliance would not be in time yet.
Though you may separate now, Truth will be found by your search."

I look forward with great interest to further discussions which will bring out with more clearness the positions of both parties, and it is not impossible that both parties as soon as they have better understood each other, will agree much better than either of them expected. But it may be permitted me to make a few comments upon a proposition that is involved in this conflict, which, however, properly considered, is neither of a philological nor a biological nature. This is the idea of the continuity of evolution. Prof. Max Müller says somewhere that, if a Darwinian means an evolutionist, he had been a Darwinian long before Darwin. "How a student of the science of language," he says, "can be anything but

an evolutionist is to me utterly unintelligible." So there is no doubt about his being an evolutionist as much as Professor Romanes. But the question is, What means evolutionist? Is he an evolutionist who believes in a piecemeal evolution interrupted here and there by acts of special creation? In my conception of the term, an evolutionist believes in evolution wherever there is life and this involves the wholesale rejection of special-creation acts as well as of the idea that any being or organism (the organism of language included) could ever have made its appearance in full growth and maturity or that any phenomenon of life could present a break in the continuity of evolution.

The Greek myth tells us that the Goddess of Reason, the blue-eyed Pallas Athene, was not born like other gods and mortals in the natural way of a slow development. She jumped out of the head of Zeus full-armed in all her beauty and gifted with the powers of her unusual accomplishments. Is this myth true after all? Does the Logos of rational thought present us with an instance in which the development process has been interrupted? If so, we shall have to abandon the evolution theory as a theory and return to the old-fashioned view of special-creation acts. The difference between these two views is not of degree, but of kind. He who accepts the principle of evolution as the law of life abandons forever the idea of special and unconnected beginnings as much as that of special-creation acts. He cannot with consistency believe in an evolution with interruptions, for the theory of evolution is serviceable only if evolution is conceived as continuous. Prof. Max Müller of course has a right to define and use the word evolutionist as he sees fit, but if he excludes continuity from the idea of evolution, we declare that he has taken out the quintessence of its meaning and the core of its truth.

Why this is so, we shall now briefly discuss.

The evolution theory has been gradually developed by empirical investigations and it owes its all but universal acceptance to the great mass of *a posteriori* evidence furnished by the natural sciences. It rests nevertheless upon a better and safer foundation than isolated instances of hap-hazard experience. Its foundation is

quarried out of another and more reliable material. The evolution theory rests upon the ground of *a priori* arguments.

By *a priori* we do not understand anything mysterious, but simply such cognition as possesses universality and necessity. That cognition which is in possession of universality and necessity is also called formal cognition. The formal sciences (for instance arithmetic, mathematics, pure logic, and pure mechanics) give us information about such truths as are applicable, because they are purely formal, to the formal conditions of anything and everything possible. Because we know *beforehand* that the purely formal laws will hold good under all conditions Kant called their formulated theorems "a priori." All the objections to the idea of apriority made by John Stuart Mill and other empiricists are due to their misinterpretation of the term.*

Mr. Mill was mistaken when he thought Kant meant *a priori* cognitions were innate ideas which came to man from spheres unknown. The very first sentence of Kant's "Critique of Pure Reason" proves that Kant knew of no other knowledge than that which begins with experience. Kant says, "That all our knowledge begins with experience there can be no doubt." But our knowledge consists of two elements, viz. the empirical and the formal. The former bears always the character of the special and incidental, the latter of the universal and necessary. The former is sensory, being furnished by the senses, the latter is properly mental originating in and with the action of the mind in dealing with sense-materials, in arranging them and bringing them into certain relations.

Formal knowledge is different in kind from empirical knowledge. The rule "twice two is four" will hold good for all possible cases, but the statement "A swan is white" does not hold good for all possible cases. European swans as a rule are white, but Australian swans are black, and for all we know, we might find swans that are blue, or red, or yellow. Empirical knowledge is full of exceptions, formal knowledge is rigid, there is no exception to any rule of formal knowledge.

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*Compare the article *The Origin of Thought-Forms* in the present number, under the caption "Diverse Topics."

All formal knowledge has developed by degrees. The history of the sciences, of mathematics, logic, arithmetic, and also of the natural sciences furnishes sufficient evidence. The formal part of the natural sciences, by Kant called *reine Naturwissenschaft*, consists of such cognitions as the law of cause and effect and the law of the conservation of matter and energy. The formulation of these laws has been accomplished after much and careful empirical investigation. And it could not be otherwise. The latter law was elaborated in its full clearness long after Kant. The law of causality and the law of the conservation of matter and energy are purely formal, they are not sense-impressions and do not contain any sensory elements. They are general rules of universal applicability which being rigidly universal and without exceptions are necessary under all conditions. Before we make any experiment we can know that they will hold good in the experiment. Indeed all our experimenting is based upon the supposition that the law of causation holds good and that there can be neither an increase nor a decrease of matter and energy.

The mistake made by the so-called transcendentalists is this, that they consider formal thought as having an independent existence, being ready at hand before cognition is possible, while in fact it is a part of cognition which at least in its germ is present in every actual experience.

The theory of evolution is not more and not less a formal principle than the law of causation and the law of the conservation of matter and energy. Indeed it is nothing but the same thing applied to a special case. The theory of evolution is the principle of the conservation of matter and energy applied to the province of life. The theory of evolution denies the possibility of special acts of creation. There cannot come something out of nothing. And the new creations that actually originate daily before our eyes are not creations from nothing, they are simply transformations. There was a time on earth in which no living being existed, neither plant nor animal. How did life originate? Our answer is, It did not originate out of nothing, but it evolved. Non-organised matter organised. That non-organised matter must contain the elementary

conditions of organised life is a conclusion which we cannot escape from our point of view; and which is fully and satisfactorily corroborated by our daily experience that water, earth, and air under the sun's influence are changed into wheat; and wheat is manufactured into the bread which nourishes man and sustains his life. Non-organised particles of matter are constantly being organised in living organisms and displace the worn-out materials in their tissues—not one atom of the latter remaining for good in a healthy living body.

The theory of evolution may be called an hypothesis, an assumption, a presumption. But in that case we must say with Mill that the rule twice two is four is also a mere assumption. The evidence for the latter is not stronger than that for the former. Mill declares that after all twice two might somewhere be five. Exactly so and not otherwise evolution might be somewhere interrupted, so that something would originate out of nothing instead of evolving from other things through transformation.

Prof. Max Müller speaks very sarcastically about the speechless man, the *homo alalus* who is supposed to be the ancestor of the present man. He says (l. c., p. 585):

"Of the *Homo alalus*, the speechless progenitor of *Homo sapiens*, with whom Professor Romanes seems so intimately acquainted, students of human speech naturally know nothing."

Prof. Max Müller also condemns all efforts of approaching the problem of the origin of language through observation of children and animals. The former he calls "nursery philology" the latter "menagerie psychology." And it is certainly true that the problem of the origin of language cannot be solved from observations of children or animals, because the problem lies in another field. The problem is not how a ready made language is transferred upon the growing mind of a baby but how speechless beings developed into speaking beings. And all the intelligence of clever animals is still very different from the rational thought of man. This is true, but it is also true that good observations of animal psychology and also of nursery philology will throw some light upon the evolution of rational thought.

Prof. Max Müller says:

"How can we attempt to realise what passes within the mind of an animal? . . . We can imagine anything we like about what passes in the mind of an animal, —we can know absolutely nothing."

We are fully aware of the fact that the problem of the origin of language is quite different from the problems of animal psychology. A solution of the latter, which are extremely complex and difficult, would not help us to solve the former. This being conceded we can nevertheless see no reason why animal psychology should be condemned and given up as a hopeless task.

It is not true that "we can know absolutely nothing about what passes in the mind of an animal." It is true we cannot see the animals' feelings and thoughts, but we can see their actions which reveal their feelings as much as and sometimes even plainer than the speech of our brother man reveals his thoughts. Might we not say with the same reason, "We see only the printed book of a scientist (which is an expression of his views as much as the behavior of an animal is of its feelings) but we can know absolutely nothing about what passes in the mind of that scientist. All we can do is to judge from analogy"? And should we on that account give up all reading and studying and also all arguing with others?

Animal psychology is not only justified as a science, but we can even hope that correct observations of animal intelligence will assist us in correctly understanding the higher intelligence of human thought. And "that some useful hints may be taken from watching children is not denied" by Prof. Max Müller either, although this little concession appears only in the shape of a short foot-note. The *homo alalus* is by no means a merely mythical figure, for according to the law of evolution man must have developed out of a being lower than the present man. His first ancestor must have been simple life-substance something like that of the amœba. He must have passed through a long period in which he was not capable of articulate speech. That we know nothing particular about the *homo alalus* is no proof against his existence. Moreover every infant is an actual real *homo alalus*, a speechless man, or should we according to Prof. Max Müller class our babies among the brutes?

Prof. Max Müller says (*The Monist*, p. 585):

"If, like Professor Romanes, we begin with the 'immense presumption that there has been no interruption in the developmental process in the course of psychological history,' the protest of language counts for nothing; the very fact that no animal has ever formed a language, is put aside simply as an unfortunate accident."

The theory of evolution rightly understood is no presumption in the usual sense of the word. It is no more a presumption than to say that something cannot come from nothing. And what is "the protest of language" which would disprove the continuity of evolution? That rational or human thought is something *sui generis*, that it is different in kind and not in degree from brute intelligence; that language is an impassable barrier between man and brute, being the Rubicon which no other animal has crossed. Very well. We agree entirely with all these propositions. Human reason is different in kind from brute intelligence and human reason has developed such as it is through language only. Nay reason is language. Noiré is right when he says, Man thinks because he speaks. But the Rubicon of language was not an absolutely impassable barrier. The speechless ancestor of man, whether we call him *homo alalus* or anthropoid, or even man-ape, *has* crossed it, and having crossed it he became the Cæsar of the animal creation.

Prof. Max Müller's theory of the identity of language and thought* is so valuable because it bridges the gap between the rational sphere of man and the not-yet rational sphere of the brute creation. It explains the origin of reason. The origin of reason in the world of living beings is explained as soon as the origin of language is understood, for reason develops with language and rational thought is nothing but rational speech. If the origin of language were an unfathomable mystery, Prof. Max Müller's view of the identity of language and thought would lose all practical importance.

The proposition of the identity of language and thought is a very radical idea; it is the fundamental idea of monism. In a more general form it was first pronounced by Giordano Bruno, who says

* I should prefer to speak of the oneness or inseparableness of thought and language, but since Prof. Max Müller has sufficiently explained himself, I use here his term "identity" in the sense of inseparableness as it is used by Prof. Max Müller.

somewhere that, if we could put the soul of a man into the organism of an animal, say of a snake, it would cease to be a human soul and become the soul of a snake. Speech would be changed into a hissing, in accordance with the snake's organs for uttering sounds. And in the same way all the feelings, all the concepts, all the desires and inclinations—in short the whole psychical life would be that of a snake.

Thought is the soul of language. As there are no ghost-souls, so there are no ghost-thoughts. And the soul is not something distinct from the organism, it is the form of the organism. It happens in fairy-tales that the Prince is transformed into a frog, but if a fairy could transform a man into a frog, his soul would certainly also become a frog-soul. Language is the visible organism of the invisible thought, and as is language, exactly so is thought.

The problem how language has developed was first answered by the onomatopoetic theory, "the bow-wow theory" as Max Müller calls it. Language was conceived as an echo of nature, as a reflex action that takes place in a living and feeling being. Yet this theory had to be abandoned, because an historical investigation of language proved that words with very few exceptions were not imitations of external sounds. Yet the spirit of investigation was not daunted by this defeat, and the bow-wow theory reappeared in a modified form. Language was still considered as a reflex action; however, it was conceived to be a reflex which re-echoed the impressions of natural phenomena as they had affected man. This was the exclamation theory which seeks the origin of language in the "ohs and ahs," the sighs and shouts of a feeling mind. Prof. Max Müller calls this theory "the pooh-pooh theory." This theory had also to be discarded because it was in conflict with the actual facts of the evolution of language. Next Noiré and Prof. Max Müller came with their theory, called by Noiré "the synergastic theory," which conceives language as the expression of common work, also called by Noiré the Logos theory, the sympathetic theory, and the causality theory. Prof. Max Müller in order to forestall any deriders of this theory suggests calling it "the yo-he-ho theory," yo-he-ho being the sailors' song when engaged in some common work as hoisting or hauling.

This yo-he-ho theory actually explains the origin of language, and it is, so far as we can see, not in conflict with any historical or philological facts. But in honor of the inventors of the onomatopoetic theory it must be recognised that the main idea of the yo-he-ho theory is the same as that of the bow-wow theory. The main idea is this: Language did not originate in man's mind out of itself in some mysterious way representing a break in the continuity of evolution, but it is a certain reflex-action of living and feeling beings taking place in consequence of external stimuli. This reflex-action however is not direct, but indirect. It is not that of a single being, it is the reflex-action of a whole society, engaged in common work. It developed in consequence of their common activity and through their want of intercommunication.

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Prof. Max Müller charges against the evolutionist, that "the very fact that no animal has ever formed a language is put aside simply as an unfortunate accident." Is this a fair reprehension? Is not the fact that no animal, except man, crossed the Rubicon of language quite a distinct problem? And accepting Professor Noiré's theory of the origin of language which considers speech as the product of a common activity accompanied by what may be called *clamor concomitans*, I see very good reasons why other animals did not develop language. First, there is no animal, with the sole exception perhaps of ants and bees, that lives in societies. Some of them live in herds, but there is a great difference between a herd and a society. This difference is first a difference of degree, but gradually it becomes a difference of kind. Secondly, animals have no organs to work with, while man has his hands, and we may add, thirdly, that no animal, not even the parrot, has the same power of articulation.

Prof. Ludwig Noiré accepts without equivocation the idea that the speechless ancestor of man became a rational being by developing language and I was always under the impression that Prof. Max Müller agreed with his late friend not only concerning the identity of language and reason, but also concerning the origin of reason. But if Prof. Max Müller agrees with Noiré, why does he object to

the continuity of evolution which as he states in a private letter to us is "only a beautiful postulate"?

Now there are indeed facts which prove that the Rubicon of reason is not so impassable to animals as Prof. Max Müller makes us believe. Let us hear Noiré on the subject. He explains most logically that man performs his many labors and has become a civilised being only with the help of language, by naming things and handling them in his mind. Noiré says:

"It can be graphically shown, how ideas may represent for man the rôle of things real; how man has acquired the power of combining in his representative faculty the most remote objects, and thereby has been able to accomplish the great miracles of human industry and commerce. But all this would be utterly inconceivable without concepts, which impart to percepts their unity and self-dependence, bring about and multiply their rational connection. Hence also, no animal can ever advance a single step beyond *present* perceptive representation, can never escape from the constraint with which Nature circumscribes the narrow sphere of its wants. Unfortunately, however, in apparent contravention of this rule, ants to the present day carry on a regular and methodical species of agriculture, keep live-stock and domestics like we! Nay, they have been caught in conversations and social entertainments of a quarter of an hour's duration—God save the mark! *

This passage is full of humor, and the humor is slightly mingled with a comical anger and self-irony. There is a fine theory excellent in every respect worked out in all its details by the Professor and now he finds a few trifles of facts which possess the impudence not to adapt themselves to the theory. "*Gott besser's*," sighs Noiré, for it is not his fault that the ants accomplish things which they ought not to, and the good Lord is called upon to adapt nature with more rigidity to the Professor's theories.

Is there not an obvious reason why ants stand so high in their performances? Are not ants social beings, more so than any other animal? We are ignorant still of all their means of communication. But that they have some means of communication seems to be an established fact. When ants from different hills but of the

* *The Logos Theory*, by Ludwig Noiré. Translated from the German. *The Open Court*, iii. p. 2196. English translations of Noiré's most important articles concerning the origin of language, have appeared in Nos. 33, 137, 139, 141, 142 of *The Open Court*.

same kind give each other battle, it happens not unfrequently that a warrior attacks another warrior of the same people most fiercely, but both let go as soon as they touch each other with their feelers.* I refrain from telling stories about the life of these wonderful creatures partly because one well-authenticated report is sufficient for our purpose and partly because I must suppose that most of my readers are familiar with the facts as presented by Darwin, Lubbock, Forel, Huber, and many others. I will add only one observation which is so far as I know undisputed. If ants of a special kind rob the larvæ of another kind and educate them as their slaves, the slaves will in case of war or danger stand by their masters even against their own folks. They evidently speak the language of the hill in which they have been raised.

Professor Forel successfully made the experiment, with the assistance of ant-nurses, of raising together several kinds of ants from the larvæ of hostile species. The ferocious Amazons and the Sanguineæ did not show any enmity toward their comrades of the Pratensis and Rufa. When set at liberty and transferred to a new residence they remained together and behaved exactly as if they naturally belonged together. And this experiment may be quoted to corroborate the proposition of Prof. Max. Müller that "thought is thicker than blood."†

Now it would be a desperate case for Professor Noiré to maintain his theory in the face of these facts, if by language we have to understand vocal signs only. Yet the idea of his and also of Prof. Max Müller's theory consists in the truth that thoughts cannot walk about like ghosts in bodiless nudity: they are a system of notation. As such they are symbolised in signs and are inseparable from their signs. These signs are sounds with men, and by words we understand usually sound-symbols. But there are other systems of nota-

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* That ants communicate with each other through their antennæ is an undeniable fact. But Landois believes that they communicate also through sounds. Some ants possess in their stridulation-organ a kind of a rattle the sound of which, however, is perceptible to the human ear only in the Ponera ants.

† See *Three Lectures on the Science of Language*, p. 47. The Open Court Publishing Co., Chicago.

tion besides vocal signs and they are for that reason not less language than speech. We have reason to believe that ants are in possession of symbolical signs and that most of them are communicated through their feelers.

Professor Romanes describes the origin of ideas (in the second chapter of "Mental Evolution in Man," p. 23) in the following way:

"Just as Mr. Galton's method of superimposing on the same sensitive plate a number of individual images gives rise to a blended photograph, wherein each of the individual constituents is partially and proportionally represented; so in the sensitive tablet of memory, numerous images of previous perceptions are fused together into a single conception, which then stands as a composite picture, or class-representation, of these its constituent images. Moreover, in the case of a sensitive plate it is only those particular images which present more or less numerous points of resemblance that admit of being thus blended into a distinct photograph; and so in the case of the mind, it is only those particular ideas which admit of being run together in a class that can go to constitute a clear concept.

Professor Romanes calls such a composite picture of sense-impressions as must be supposed to exist in the animal brain "a recept" and he distinguishes it from "the concept" of man. He says: "Reception means a *taking again*. . . . The word 'recept' is seen to be appropriate to the class of ideas in question, because in receiving such ideas the mind is passive." By "concept" however he understands "that kind of composite idea which is rendered possible only by the aid of language or by the process of naming abstractions as abstractions."*

We agree with Professor Romanes in the main point, viz. that the process of evolution must be considered as uninterrupted, but we cannot agree with him on several minor points.†

We must express our doubt concerning the propriety of calling the mind passive when receiving impressions. Every single sensation is an active process, just as much as a reflex motion, and it may

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* Prof. Lloyd Morgan introduces several new terms, which seem well coined. The mental product which is called the object of sense he calls "construct"; the most prominent feature in a composite sense-image, he calls the "predominant"; and if the predominant is named and isolated by abstraction he calls it an "isolate."

† An impartial criticism of Professor Romanes's position has been made by Prof. Lloyd Morgan in his recent work *Animal Life and Intelligence*.

be considered as a reaction that takes place in response to the stimulus of the impression. Conception of course is also an active process, and concepts, the products of conception, establish a new department in the mind. "Noiré, quoted by Prof. Max Müller, says: 'All trees hitherto seen by me leave in my imagination a mixed image, a kind of ideal presentation of a tree. Quite different from this is my concept, which is never an image.'"*

And this is true.

We have on another occasion explained that sensations are sense-impressions which have acquired meaning.† Rays of light are reflected from an object and fall upon the retina of an eye. Here they produce a disturbance of nervous substance which is transmitted to the brain where it is felt as the image say of a tree. Now the ether-waves are not sight, but a certain form of ether-waves corresponds to a certain form of sight, and the latter comes to stand for the former. The mental picture of a tree becomes a symbol for a special object outside of us and it is projected to the place where experience has taught us to expect that object. In naming objects we repeat the process of expressing by symbols. Sensations are symbols, and names are symbols of symbols. The name and concept tree is not the composite picture of all the trees I have seen, but it is the symbol of this composite picture of sense-impressions. Sensations are like the chords of a piano and the concepts are like the keys. The key is different in kind from the chord which belongs to it. When I touch the key the chord will sound: when I pronounce a name the composite sensation of all its analogous memories will be awakened.'

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Can there be any question that difference in kind can originate by degrees? Professor Romanes uses the phrase "different in kind" as synonymous with "different in origin" and therefore declares that human reason and animal intelligence are "different in degree"

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* This quotation is requoted from Prof. Lloyd Morgan, *Animal Life and Intelligence*, p. 325.

† *The Origin of Mind*, in *The Monist*, Vol. I. No. I.

only. The word "kind," it is true, is at least as vague as the word species and a naturalist may often be doubtful where to draw the line. Man and monkey are different in kind, and they are also more different in origin than Carl Vogt assumed, for man is not the descendant of any of the monkey families now existent. But this does not disprove that they are of a still remoter common origin or at least that they originated in the same way in some amœboid form as simple life-substance.

New formations which originate through combining are as much new creations, i. e. things new in kind, as if they were produced through special-creation acts of God which are said to be creations out of nothing and not mere transformations.

Man builds houses out of bricks and timbers. Is not the house something different in kind from the trees and the clay from which the materials have been taken? Is not the boiler of a steam-engine different in purpose and accordingly also different in kind from a tea-kettle? Is not every invention something different in kind? And is not the same true of the products of thought? Is not a triangle something different in kind from a line? And the origin of the former is not more miraculous than that of the latter. A triangle is more complex than a line, but its existence in the mind is not more of a mystery than the existence of the line. Difference in kind need not include difference of origin. Harmony is different in kind from melody. Notes in succession produce melody, while simultaneous notes produce harmony. In either case it is simply a matter of combination.

Professor Romanes when speaking of the passivity of sense-impressions seems to think of the unconsciousness of the process. We are not conscious of the transformation of impressions into sensations while we can become aware of our efforts to change the sense-material into concepts. Yet the nature of mind is throughout activity. And no one has perhaps insisted more strongly on the activity of mind than Prof. Max Müller. But Prof. Max Müller distinguishes between the activity of the mind and the ego which as he supposes performs that activity. He says ("Science of Thought," p. 63):

"We think of a mind dwelling in a body, and we soon find ourselves in the midst of psychological mythology. Let it be clearly understood, therefore, that by Mind I mean nothing but that working which is going on within, embracing sensation, perception, conception, and naming, as well as the various modes of combining and separating the results of these processes for the purpose of new discovery.

"But if Mind is to be the name of the work, what is to be the name of the worker? It is not yet the Self, for the Self, in the highest sense, is a spectator only, not a worker; but it is what we may call the Ego, as personating the Self; it is what other philosophers mean by the Monon, of which, as we shall see, there are many. Let us call therefore the worker who does the work of the mind in its various aspects, the Monon or the Ego."

And in another passage (l. c., p. 552) he speaks of the simplicity of the monon:

"If then the process of thought is so simple as we saw, not less simple, at least, than that of speech, it follows, that the complicated apparatus which had been postulated by most philosophers for the performance of thought in its various spheres of manifestation, must make room for much plainer machinery. Instead of intuition, intellect, understanding, mind, reason, genius, judgment, and all the rest, we want really nothing but a self-conscious Monon, capable of changing all that is supplied by the senses into percepts, concepts, and names. These changes may be represented as something very marvellous, and we may imagine any number of powers and faculties for the performance of them."

"Grant a Monon conscious of itself, and conscious therefore of the impacts made upon it or the changes produced in it by other Mona which it resists, and we require little more to explain all that we are accustomed to call Thought."

The continuity of evolution naturally holds good according to Max Müller for the natural man, but not for the Self.

How is this? Is the monon perhaps conceived as not-natural or outside of nature. Hardly. For Prof. Max Müller speaks of the object also as being a monon.* If the objects are as much mona as the subjects the same laws must hold good for both, and the subject-monon must be supposed to be an object-monon if considered in its relation to other object-mona.

If Prof. Max Müller's protest against the continuity of evolution is not based upon the dualism of natural and extra-natural mona, what can it mean when he says that evolution does not hold good for the Self?

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*L. c., p. 281. "So much about the subject or the monon. What now about the objects or the mona?"

If the Self is conceived as a monon, i. e. something "alone" like an atomic unit, it can have no evolution. Evolution is change of form through the production of new configurations. A monon or an isolated unit considered by itself cannot evolve. It is as it ever has been and will be—a monon.

If this is Prof. Max Müller's meaning, we must ask, How does he know that the self is a monon and that objects are mona? Do they not, if so conceived, become highly mysterious entities? New mona are constantly born into this world. Whence do they come? Is every birth of a child the new creation of another monon by the creator, who so distributes the babes in the world that like babes are given to like parents thus producing the wrong impression of heredity as well as of a continuity of evolution? The idea of explaining all the activities of the mind by the postulate of a conscious monon is very simple indeed, but the problems which would arise from this postulate are extremely complex, and it seems to us that after all the proposition of evolution is by far the simplest solution of all the difficulties.*

Mind as we conceive it is the product of evolution. Mind has been evolved in a world which (judging from its product) must be conceived as being freighted not only with energy but also with the

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* Prof. Max Müller is a great admirer of Kant and so am I. But it appears to me that we differ greatly in what we accept as the essential teachings of the master; and I grant willingly that Prof. Max Müller has preserved the doctrines of Kant more faithfully than I. I have attempted to modernise Kant. If I am called a Kantian (and I do not object to the name, on the contrary I am proud of it) it is because I proceed from Kant and I attempt to preserve the spirit of Kant's philosophy rather than his doctrines. For the sake of the spirit of Kantian philosophy I have seen myself urged to surrender the idea of the thing-in-itself as something unknowable. Prof. Max Müller has preserved in his philosophy (for such is the *Science of Thought*) the Ding-an-sich theory. Believing in things-in-themselves he must consistently believe in a self or monon, for this monon is nothing but the thing-in-itself of the soul.

I have limited myself in the present article to the principle of continuity in evolution as a point of divergence between Prof. Max Müller and the views defended by *The Monist*. If I attempted at present to enter into the philosophical problem of things-in-themselves, I should be obliged to tax too much the patience of my readers. But as I am convinced that the reason of our difference with Prof. Max Müller concerning the continuity of evolution lies deeper still, I intend to treat the subject of things-in-themselves in a future number.

potentiality of feeling. Mind, as we know it in experience, is no monon, no indivisible unit, but a unitary system of feelings and thoughts produced through external impressions upon one part of the world by the rest of the world which surrounds it. Mind is an abstract term ; it does not denote a part of the world, but a certain quality of a part of the world, viz. the feelings and thoughts of special kinds of organisms. Mind is produced through external impressions, but it does not consist merely of external impressions. Mind, as we have stated before, is not passive ; it is active. It consists of the reactions which take place in response to impressions and also of the accumulated products of these reactions. Thus every mind is the concentrated effect of the whole cosmos upon one special part of the cosmos, not as it takes place in one moment, but as it has taken place in a definite and continuous period up to date. The accumulation of these effects makes the mind grow and expand and the system of the growth constitutes its specific character. We can as little think of the mind as appearing suddenly by an act of special creation as we can think that an oak tree can be created out of nothing or that it can exist without previous growth. The law of continuity holds good as much in the realm of the human mind as in the domain of animal and plant-life.

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So far we have borne in mind the philosophical and scientific aspect only of the continuity of evolution. There is another aspect however of no less importance, that is the religious view of the subject. We do not believe that science and religion are two different spheres of thought and that something may be true in science which is not true in religion. Since the theory of evolution has revolutionised almost all our sciences, we ask, what influence must this change of thought exercise upon religion ? Is not the religious idea of God destroyed and the whole system of religion overturned ?

We think not. An old and very powerful system of theology which has been considered as orthodox for centuries will become untenable as soon as the idea of evolution and the continuity of evolution are recognised in their sweeping importance ; but religion itself will enter into a new phase of evolution and the idea of God

will not be cast aside as a mere superstition of the Dark Ages, it will be purified and appear in a greater and sublimer, in a nobler, higher, and in a truer conception than ever before.

The idea of God is an historical heirloom of past ages. The religious man and the philosopher of all times have tried to put into it their highest, their best, their grandest, and their purest emotions as well as thoughts. And these thoughts were not meaningless, they were not mere fancies. They contained the quintessence of their conception concerning that feature of reality which has produced us as living, thinking, and aspiring beings, and which still prompts us to aspire to higher aims. The world which has produced other beings and ourselves, cannot be and is not a meaningless congeries of material particles in motion. It is a living cosmos. It is a grand harmonious universe pregnant with mind, and nothing in it is suffered to exist for any length of time but that which conforms to its laws; and that which conforms to its laws we call moral.

The idea of God, however, as it is commonly taught in our schools is full of pagan notions, and the very paganism of the present God-idea is often supposed to be its deepest and holiest meaning. No wonder that atheism increases with the progress of science! And why should not atheism increase, if it is truer than a superstitious theism? Atheism I believe will increase more and more until theism is cleansed of its pagan notions. But atheism will not come to stay, for atheism is a mere negative view and negations have no strength to live. They have power to criticise and they will serve as a leaven in the dough. Their purpose is the purification of the positive views. Negations will pass away as soon as their purpose is fulfilled.

The old pagan conception (now considered as orthodox) places God in the dark nooks and crevices of our knowledge. Wherever science fails and wherever our inquiring mind is entangled in problems which we cannot hope to solve, wherever the continuity of nature and of the order of nature is hidden from our intellectual sight, the so-called orthodox believer comes forth and declares: "This is a holy place. Here is the finger of God's special interference!" Consider what a degrading view of God this is! The place of dark-

ness is conceived as an actual break in the order of the world and this break is supposed to be a special revelation of God! If we trust in truth, we need not shun the light of science and the God of science—in contradistinction to the pagan notion of God—reveals himself in the discoveries of science. God lives not in darkness but in light, and his existence is proved not through the breaks in nature (which we can be sure do not exist, and wherever they appear are due to our ignorance) but through the order of nature, for God *is* the order of nature. God is that power through which we exist as living, thinking, and aspiring beings, and to which we have to conform in order to live.

When Darwin speaks of "life as having been originally breathed into a few forms or into one *by the Creator*," he either uses allegorical language or he means that the beginning of life was an act of special creation. He apparently means the latter and is in this respect not a consistent evolutionist. Darwin was great as a reformer of natural science, but in theology he still stood upon the old standpoint. He calls God to rescue where science fails. The Creator did not originally breathe life into the organism, but his breath is constantly ensouling all living beings. Now suppose there were or there could be exceptions to the law of causation, to the conservation of matter and energy, or to the continuity of evolution, would that not rather be a drawback in nature? Are the patches on a coat better proof that it was made by a tailor than the whole coat? Any kind of theology which still recognises special-creation acts, or miracles, or breaks in evolution, we do not hesitate to say, is not yet free from paganism, for it still sticks to the religious conception of the medicine-man that God is a great magician. The God of the medicine-man lives in the realm of the unknown and he appears in man's imagination where the light of science fails. The God of science however is the God of truth, and evidence of his existence is not found in the darkness of ignorance but in the light of knowledge. God's being is not recognised in the seeming exceptions to natural laws, but in the natural laws themselves. God's existence is not proved by our inability to trace here or there the order of cause and effect, as if a disorder in the world made it divine; on the con-

trary the only rational ground of a faith in God is the irrefragable cosmic order of the universe. It is true that we have to give up the idea of a personal God, but is not a superpersonal God greater than the idol which we have made unto our own likeness?

The God of science is perhaps more in agreement with the biblical God than the God of dogmatic theology. The interpretations of biblical passages which are at present generally considered as orthodox are (merely from the standpoint of impartial exegetics) untenable. The first chapter of Genesis has not one word about special-creation acts. Neither the Elohim nor the Jahveh-Adonai account declares that in the beginning there had been Nothing. Both accounts (Gen. Chap. I. 1 to II. 3, and II. 3 et seqq.) agree that God "shaped" the world. The word *barah* (to shape, to form, to make) is nowhere used in the sense of creating out of nothing. The Psalmist says, "By the word of the Lord were the heavens made," which was so interpreted in the New Testament that it meant "by the logos," and the gospel of St. John adds *καὶ θεὸς ἦν ὁ λόγος*, i. e. and the word was God. Logos means rational speech or reason, and the world-reason through which the heavens were made can mean only the cosmic order of the universe. This idea of St. John's thought out to its ultimate conclusions means monism.

There is a common error that scientific progress is dangerous to religion. Scientific progress is dangerous to superstition only. Religion (i. e. true religion) is not based upon our ignorance, but upon our knowledge; it is not a child of the darkness but of the light, and faith far from being a mere belief, i. e. the imperfect knowledge of an opinion for which no proof is forthcoming, is applied knowledge, it is knowledge plus the confidence that this knowledge can be made the basis of ethics and the supreme rule for regulating our conduct in life. The history of religion has been and is still a constant purification of our religious ideas, and the crucible in which the religious ideas are purified is science. We are slowly but constantly progressing toward a high religious ideal and this ideal is a cosmical religion free from the pagan notions so severely criticised by Christ and yet so carefully preserved by the Christian churches. This

cosmical religion will be the religion of science. It will not consist of religious indifference nor of a toleration of any and every opinion as is so often erroneously proclaimed as the ideal of liberalism. On the contrary it will be in a certain sense the most orthodox religion, for its maxim will be to stand on the truth and nothing but the truth. And the truth is not at all indifferent or tolerant. The truth is extremely intolerant and suffers no error beside it, although, as a matter of course, the truth is very tolerant in so far as it sanctions no violence but employs only the spiritual sword of conviction by argument and logical proof.

We have given up the idea of special acts of creation as the calling forth disconnectedly of something out of nothing. We conceive the whole world as an orderly cosmos, well regulated by laws and evolving the forms of life in agreement with its laws. Is there less divinity in a cosmos than in a half chaotic world in which God makes exceptions and counteracts his own ordinances? Is the idea of creation less religious if it ceases to mean an origination of something out of nothing? Is not man at least just as wonderful if evolved step by step out of the dust of the earth through innumerable stages in the long process of evolution as if he were made directly out of clay? And is there less divinity in his soul, is he any less shaped unto the image of God because his growth took place according to natural laws? Natural laws, in the conception of purified religion, of the religion of science, are nothing but the ideas of God, eternal and immutable, and formulated by scientists not on the ground of special revelations but on the ground of the universal and unchangeable, and throughout consistent revelation of God in his works.

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The science of language and the science of life are two important highroads to the cognition of truth. That both sciences will be consistent with each other, that their results will finally be seen to harmonise perfectly is beyond all doubt and also that their bearing upon religious ideas will contribute much to their purification. Prof. F. Max Müller and Prof. George John Romanes are two great scholars, each one is a leader in his own branch of knowledge, and

where they come in conflict, it appears to us, that they rather complement than refute each other. Both are strong Monists, although emphasising different sides of Monistic truth and we feel convinced that their very differences will help us to elaborate more fully and clearly and more comprehensively the great truth of Monism—of that Monism which will more and more be recognised as the corner-stone of science and also of the religion of science.

EDITOR.

LITERARY CORRESPONDENCE

I.

FRANCE.—THE INTELLECTUAL AWAKENING OF THE LANGUE D'OC.

I HAVE never seen mentioned in your periodical publications the *Revue des Pyrénées;* and perhaps I should never have heard of the periodical myself if I had not been in this interesting old city, and if my eye had not chanced on the title of one of the articles of a recent number advertised in a local journal. "Un Ariégeois sénateur des Etats-Unis d'Amérique: Pierre Soulé" was the title that attracted my attention and caused me to procure a copy, which I have found interesting in more ways than one.

The publication is a well-printed quarterly of 150 pages, and has completed some time since the second year of its existence. Its full title is as follows: *Revue des Pyrénées et de la France meridionale, Organe de l'Association Pyrénéenne et de l'union des Sociétés Savantes du Midi.* The founders of the periodical are the late JULIEN SACAZE, a savant much venerated in these parts, and Dr. F. GARRIGOU, its present editor.

The Association Pyrénéenne, of which, as we have just seen, the *Revue* is the organ, is an active and significant organisation. Here are some of its aims. While it recognises the greatness of the Capital, Paris, it advocates decentralisation, by "showing that workers living in the provices are as capable as others, though enjoying less support and funds, to aid in the building up of the great scientific edifice of France." The importance and boldness of this

declaration can scarcly be appreciated by those who have not breathed for some time the excessively monopolistic atmosphere of the French capital, which has been so baneful to so many national interests. The Association would also act as a means of union between the various learned societies of the South, the Midi, and thus render it possible to organise an annual Congress "for the discussion and defense of the grand scientific, industrial, and commercial questions which concern Southern France."

Here we see brought out still more precisely that rivalry between the South and North, characteristic of most nations, and which presents such curious aspects in the past and present history of France.

I never weary of quietly noting, while in the South, the delightful contempt which the *méridionaux* show for their Parisian fellow countrymen. The other day at dinner, for instance, I heard a learned professor of one of the Southern Universities defending the Southern accent and preferring it to "the Parisian accent," as he put it. But I would need pages of your space to develop this line of thought. Suffice it to say here that the Association Pyrénéenne and its organ the *Revue des Pyrénées* intend to prove, and have succeeded in proving, if we may judge by this number of the *Revue* and by the account of the proceedings of the first Congress of the Association, placed at the head of the number, that there are creditable savants and sound learning outside of the walls of Victor Hugo's "Ville Lumière."

Another object of the Association would be dear to Castelar's heart. I give it in full: "To remove morally the grand Pyreneean curtain and to offer the hand of friendship to a nation justly proud of its past, whose interests touch our own, and which has the right, because of the illustrious sons of Catalonia, Aragon, and Navarre, to take part in an intellectual and Pyreneean association based on science." This is a paraphrase of Louis XIV's famous remark concerning the Pyrenees, when he placed his grandson on the throne of Spain. Nor can one be surprised at the strong affection which binds Southern France to the Iberian peninsula. The grand mountains, the "Pyreneean curtain," which separate the two countries, are always in sight, their snow-capped peaks glittering in the sun; the various *patois*, especially the dialect of Pau, resemble the Span-

ish more than they do the French tongue; Spanish money is foisted on you at the shops, and picturesque Spanish mountaineers lend a peculiar charm to the country fairs, while the nation is ever on the eve of a pronunciamento, destined to give to Spain the republican institutions of France.

But to return to PIERRE SOULÉ who is the cause and starting point of this letter. Commandant Trespaillé's eulogistic biographical sketch is of slight interest to American readers, who can find elsewhere a fuller and more exact account of the brilliant but rather disappointing career of the once famous Franco-Louisiana statesman. M. Trespaillé's reference to "Old Hickory" as "the immortal Jackson," his statement that the American people is full of prejudices against the French race, his metamorphosing New Hampshire's only President into Pierre Francklin, and some other similar slips can be overlooked, for this essay offers a striking example of the dominant idea of the *Revue*, the Association and patriotic Southerners generally,—the glorification of the great men and great actions of the sunny South, the "Midi ensoleillé."

And I must admit, foreigner though I am, that I share much of this enthusiasm for persons and things meridional, and especially for the latter. What a land this is for historical and archæological study! Take this number of the *Revue des Pyrénées*, for instance; it is full of it. Here, for example, are the titles of three of the papers read at the first Congress of the Association Pyrénéenne, to which Congress I referred above: "The Domitian Road from Narbonne to Perpignan," "The Third Century School of Sculpture in Southern Gaul," and "The Roman Road from Narbonne to Carcassonne." There are several articles in the *Revue* about the University of Toulouse, which is stated to be the oldest in France after that of Paris, having been founded in 1229, more than two hundred and fifty years before the discovery of America. The law school even antidates 1229 and its foundation is lost in the obscurity of the early centuries of the Christian era. Another article begins the publication of a list of the professors at the law school. The first recorded name dates from 1251. When one finds such themes as these on every hand, Rome, Gaul, the Middle Ages, and feudalism become almost living

realities. And how inexhaustibly rich Languedoc is in these reminders of the distant past.

And the patois or dialects of this part of France are not the least ancient and interesting subjects for study. Wonder is often expressed that the English of America differs so slightly from the English of England, with three thousand miles of ocean separating the two countries. The wonder increases when you find that here in Languedoc the same patois differs in some particulars from town to town. Let me first mention some big differences and then touch upon some minor ones. If you take the train which leaves Toulouse at about half past eleven in the morning, you will arrive at Pau at half past four. During these five hours on a pretty slow train you have passed from one patois to another. The lower classes of Toulouse cannot understand the lower classes of Pau. And if you continue in the same train, at about half past eight you reach Mauléon, in the French Basque Provinces, where the populace of neither Toulouse nor Pau could carry on a conversation with the populace of Mauléon. Thus a nine hours' ride of about 175 miles on an accommodation train carries you through a region where French is the vernacular of the educated classes and is the official language, but where the great mass of the population is divided into three groups, each speaking a different dialect.

The modifications which the same patois undergoes in neighboring localities is not less curious though of course not so radical. Roughly speaking it may be said that the same patois is spoken from Montpellier to Bordeaux and from Toulouse well up into the centre of France, which embraces the region where prevailed the Langue d'oc from which the present patois is derived. But, while a peasant could make himself understood throughout this wide territory, his ear would often be perplexed by more than one strange word and phrase. I was once told on the Riviera that the patois of Menton differed considerably from that of Nice and that this was particularly the case before the construction of the Corniche road and the railway, when a denizen of the former place could reach the latter city only by doubling Cape Martin under sail. I do not know how true this statement is, but I believe it to be correct, after a superficial study

on these same lines which I have just made in the Department of the Tarn, one of the most isolated portions of Upper Languedoc. I find that the patois of towns as near together, as are New York, Newark, Patterson, Nyack and Tarrytown, for example, differs, not, perhaps, in its construction but in its vocabulary. Let me give some examples. Thus, potato, which is *truffet* at Cordes, becomes *truffo* at Castres. *Patano*, the word employed in the South East end of the Department is also heard at Castres, but never at Cordes, which is in the North West end of the Department, Castres being about in the centre. Dog is *cagnot* and *cô* at Cordes, and *gous* at Castres. (At Montpellier, in a contiguous Department it is *tschi*, while at Pau they say *can*, which approaches very near the Latin.) Pig is *pourcel* at Castres and *tessou* at Cordes. Broom *engranicro* at Castres and *balatso* at Cordes. I have also noted the following difference between the Tarn patois and that of Pau. The *f* of the former always becomes an aspirated *h* in the latter. Thus, *femo*, woman (Castres) is *henno* at Pau; *fourco*, pitchfork (Castres) *hourco* (Pau); *foun* fountain (Castres) *houn* (Pau).

A comparison of this patois with the French as regards the spelling of geographical names reveals a fact that would somewhat dampen the ardor of our friend Colonel Shephard, of New York, in his effort to force the gazeteers to give geographical names as they are written in the countries where they are found. One might have thought that such near neighbors as the Langue d'oil and the Langue d'oc would have come to some rational understanding on this point and that the Ile-de-France would have accepted the spelling of Languedoc. But not so. The towns and rivers of this part of France look as different in French and patois printed pages and sound as differently when pronounced by educated and peasant mouths, as do the towns and rivers of Italy when seen in Italian and English books or when spoken by Americans and Italians. Thus Toulouso became Toulouse; Castros, Castres; Dourgnos, Dourgne; Carcassouno, Carcassonne; Narbouno, Narbonne; Billofranco, Villefranche; Labaou, Lavaur; Bibiers, Viviers; Boou, Vour; Abrayrou, Aveyron; Cordos, Cordes, etc.

These patois, these dialects of the old Langue d'oc, are awakening

just now increasing interest in the literary circles of the Midi, for it is only within recent years that the French has appeared to threaten their extinction. The spread of the railroad system and especially the wide development of the primary school since the advent of the Third Republic, are dealing deadly blows at these popular dialects. But they are still far from moribund. I have frequently been told that even to-day one stumbles now and then on old peasants living up in the isolated Black Mountain, a spur of the Cévennes, and which divides Upper from Lower Languedoc, who cling to *oc*, although *obe* or *ope*, or the French *oui* and *si*, are the common affirmative particles of the patois.

It has often happened to me when taking a constitutional to ask my way and discover that I am addressing a person who neither understands nor speaks French, though, as a rule, all peasants understand French and the vast majority can speak the language too, but after a rather sorry fashion. A foreigner finds at least one comfort in all this: in Languedoc he uses the national tongue more correctly than thousands of native born Frenchmen! Nor is the knowledge of patois confined to the peasantry or the working classes of the towns. The *bourgeoisie*, with exceedingly rare exceptions, are quite at home in it, and the children of the nobility often prattle with their peasant nurse more easily in patois than in the polished speech of their parents. During a political campaign, it is a very common thing for a would-be deputy to address country voters in their familiar dialect, thereby gaining the favor not alone of the *félibres;* while, during this same period of electoral excitement, the local papers publish almost daily editorials written in patois. In hundreds of rural churches the short sermon after early mass is preached in patois, and many a time I have found myself turning with surprise when I heard French spoken in the streets of Languedocian towns of considerable size.

There was a time when the government and the ruling classes of Languedoc itself strove to eradicate these dialects and to substitute French for them. The aim was a patriotic one; greater national unity, it was believed, would thus be secured. But that period has gone by, and at present there is a strong tendency to preserve from destruction these linguistic souvenirs of a rapidly fading past. What

the enthusiastic *félibres* would do for Provençal, they and their disciples and imitators in Languedoc would do for the dialects of South Western France. At the Congrès d'Etudes Languedociennes, held recently at Montpellier, one of the members proposed that the French language should be taught in the primary schools through the medium of the langue d'oc. The suggestion is not so chimerical as it appears to be at first blush, for one of the greatest and never-ending difficulties of the country schoolmaster in this part of France is to teach his scholars the three R's by means of the French, which is a foreign tongue to ninety-nine out of a hundred of them. One is not surprised, therefore, to find that one of the resolutions passed by this same Congress takes up the plan proposed in the paper just referred to, and declares in favor of "the utilisation of the langue d'oc for teaching French in the primary schools."

At a recent sitting of the General Council of the Bordeaux University a resolution was passed calling for the creation of a chair of "Southern languages." In explanation of this term, the *Gironde*, the leading Bordeaux newspaper, says: "Besides giving instruction in Spanish, one of the labors of the professor would be to teach our South Western dialects in which the most important historical documents of this part of the country were drawn up during several centuries." The editor then goes on to say: "If the State does not feel able to found this chair, will not some private individual come forward and imitate the example of James E. Clark, who recently established at Worcester, Mass., a university endowed with a capital of $12,500,000?"

Speaking of primary schools reminds me of a curious fact which has frequently attracted my attention in Languedoc this winter. In no other part of France perhaps was it so common for a town to grow up around a castle; for this region was terribly harried by the Wars of Religion, and the poor peasants were forced to seek the protection of some lord. In order to render them more impregnable, these castles were generally built on some high hill. So now one sees on every hand decaying hamlets surrounding ruined castles left almost deserted on the very crown of some pyramidal mount, while the busy town of to-day has descended to the more accessible base

of the hill. But since the advent of the Third Republic and the grand impetus given to primary instruction, these abandoned castles have taken a new lease of life, and been converted into school buildings. The other day during an hour's drive in Upper Languedoc I saw two of these old useless feudal piles consecrated to popular nineteenth century education. What a train of reflections is thus suggested! Within the very same walls where some proud ignorant seignior once lorded it over his humble vassals, the descendants of these serfs, still speaking the tongue of their oppressed ancestors, but enjoying all the liberties then usurped by their masters, are now being instructed in branches of knowledge of which the feudal knight had scarcely an inkling. What a revolution was that of '89!

THEODORE STANTON.

II.

GERMANY.—RECENT PUBLICATIONS IN THE DOMAIN OF PATHOLOGICAL PSYCHOLOGY.

The science of anthropology claims, as we know, to have discovered, that the various epochs of history are marked not only by characteristic religious, political, social, and literary conditions, but not unfrequently also by particular forms of disease; and it is the opinion of eminent medical authorities that nervous and mental diseases constitute the "pathological feature" of modern civilisation. This, of course, is not to be understood as meaning that diseases of this character have not appeared in previous epochs, but simply that they occur with unusual frequency at the present day and in unusually grave forms.

A book treating of the affliction of the age ought to count on a large circle of readers, and it will be all the more deserving of such if it thoroughly and skilfully fulfils its purpose of holding up the mirror to the time and of imparting the light and advice required in this matter. This has been done in an excellent manner by the work of the Bremen alienist Dr. SCHOLZ, entitled *Die Diätetik des Geistes—Ein Führer zu praktischer Lebensweisheit*, which has just appeared in its second and enlarged edition, Leipsic, E. H. Mayer. This book is distinguished from the majority of similar recent publications intended for a greater public by its relative thoroughness. It must be characterised as thorough and comprehensive, also, in comparison with the older and more celebrated work, which its title at once suggests, FEUCHTERSLEBEN'S *Diätetik der Seele*. The character of the book is not "purely psychological," overlooking the high importance of the influence of the body, as was the case with Beneke; nor does it lean towards the moralising of a Heinroth and Ideler; nor does the author treat his subject from an exclusively medical point of view: the work, in fact, is anthropological in character. Its contents possess chiefly in two respects great interest: (1) from a universal human point of view, in that it affords us a

glance into the awful abysses of life, in the company of an expert guide who tells us how these depths are to be avoided, or at least gives consolation to those whose way leads necessarily through them; and (2) from a pedagogical point of view, in that it directs attention to the heredity of the morbid constitutions and abnormalities that oppose obstacles to education or may become such if improperly treated.

It is obvious that morbid mental dispositions must be taken into account in all work of education and instruction, if we wish to avoid an egregious violation of the universally recognised requirement to regard individuality. And from this point of view the book of Dr. Scholz will awaken in readers who have anything to do at all with education, the desire to learn more about the nature of morbid mental life in the young than is presented in this treatise destined for a large public.

Such a wish would have had to remain unsatisfied six years ago, when the *Diätetik des Geistes* first appeared. It is true, English physicians particularly, like West, Conolly, Maudsley, and others, had a long time previously directed attention to the morbid phenomena of infant psychic life, but their work, like that of their French and German professional associates, lies buried in medical magazines and volumes not easily accessible. The first to apply himself to the work needed in this condition of affairs was Professor Emminghaus, who digested and collected all the material, thus supplied, in a compendious work bearing the title *Die psychischen Störungen des Kindesalters*, Tübingen, Laupp, 1887. The fact indeed is not to be left unrecognised that the book, in so far as it may be used by those who have not had a medical training, possesses two defects,—defects, however, for which the author cannot be censured. In the first place, it is intended for physicians only, and is therefore, on account of the many technical terms it uses, at times not uniformly intelligible. To the serious student, however, who possesses the previous psychological and physiological knowledge most indispensable, it presents no difficulties of too great magnitude. The second defect likewise springs from the purpose of the work. It consists in the fact that, excepting a few occasional references and

hints, the pedagogical aspect of the question is not considered. Pedagogists, here, are confronted with a problem which must be solved, and of which the solution will certainly not be a thankless task. The writer of these lines has approached one aspect of this question in a treatise of his entitled *Nervosität und Mädchenerziehung*, Wiesbaden, 1890, in the course of which study he has arrived at the conviction that an important factor is lacking in modern pedagogics and the training of teachers. This conviction he has put into words in another treatise, *Geistesstörungen in der Schule*, Wiesbaden, 1891, with what success it remains for the future to say.

Two years after the appearance of Emminghaus's work a translation was published in Germany of a French book of a similar character. *Der Irrsinn im Kindesalter*, by Dr. Paul Moreau, authorised edition by Dr. Demetrio Galatti, Stuttgart, 1889, Ferdinand Enke, publisher. Unfortunately, Moreau, as his own preface reveals, did not know, when he wrote his book, of the existence of the German work,—a circumstance that has not been without regrettable consequences. Taken in conjunction with the work of Emminghaus, however, Moreau's book possesses, on account of the numerous morbid cases it gives, a high value; although it cannot bear comparison with the former work in richness of material and familiarity with the literature of the subject, and much less so in the psychological treatment of the subject, where Emminghaus is incomparably subtler and more profound.

A treatise that is closely related, in point of subject-matter, on the one hand to the works of Emminghaus and Moreau, and on the other to the books of Preyer (*Die Seele des Kindes*) and Perez (*Les trois premières années de l'enfant* and *L'enfant de trois à sept ans*) on the development of children, has just been published by a Leipsic teacher under the title of *Die Periodicität in der Entwickelung der Kindesnatur, Neue Gesichtspunkte für Kinderforschung und Jugenderziehung*, by Gustav Siegert, Leipsic, 1891, R. Voigtländer. The author endeavors, in a very interesting manner we must admit, to show that, in the development of the child, lasting states in regular alternate succession occur of mental and physical buoyancy on the one hand and depression on the other, of moral exaltation, likewise,

and moral subsidence. The fundamental cause of this periodical alternation, of the general existence of which numerous proofs are adduced, is supposed to lie in the alternate strengthening and relaxation of the individual's forces of action, brought on by the expenditure and reproduction of energy; additional determinative causes, accelerative as well as retardatory, are found in intercourse with the world and with other human beings. We may call the former the individual and the latter the social cause of the phenomena of periodicity. In the application of his results to juvenile education the author arrives at some far-reaching propositions of reform, the consideration of which, however, we shall have to leave to the pedagogical press.

We shall have to preserve the same attitude with regard to a new work of the well-known Leipsic professor Dr. STRUMPELL—*Die pädogogische Pathologie oder die Lehre von den Fehlern der Kinder*, Leipsic, 1890, Verlag von Georg Böhme Nachfolger. We must refer here to this otherwise highly deserving book only in one respect, where we have occasion for censure. The author does not in his expositions sufficiently take account of the intimate connection between physical and mental phenomena, and the consequence of this is among other things that he excludes pathological mental conditions (the physical causes of which he is forced to admit) as a matter of principle from the pedagogic system and consigns them entirely into the charge of the physician. In our treatise mentioned we have explained why this is not allowable, as well as, in addition, what portion of duty devolves on the teacher in the consideration of these pathological mental conditions. Strumpell's mistake springs from the fact that he conceives with Herbart the essential object of education to be intellectual culture. Allowing that Herbart cannot be taken to task for entertaining this conception, we may yet demand of Strumpell the recognition of the results of recent physiological psychology to the extent at least of perceiving that psychical and physical phenomena are *one* if not the *same*. Even the opponents of Monism dare not overlook this truth,—a truth moreover that admits very well of reconciliation with the Herbartian pluralism to which Strumpell is devoted.

We might cite here numerous pathological conditions of mind that very plainly spring from physical causes and to which the instructor has to give attention just as much as the physician. Instead, however, of citing particular cases, we will refer to three little treatises that are in the highest degree instructive on this point, not only for teachers exclusively but also for all who have to do with children. Dr. MAXIMILIAN BRESGEN, specialist in diseases of the nose and throat at Frankfort on the Main, has published at the house of Leopold Voss in Hamburg (1890) a brochure entitled *Ueber die Bedeutung behinderter Nasenathmung nebst besonderer Berücksichtigung der daraus hervorgehenden Gedächtniss- und Geistesschwäche.* A treatise of like character is that of Dr. med. LENZMANN of Duisburg, entitled *Ueber den schädlichen Einfluss der behinderten Nasenathmung auf die körperliche und geistige Entwickelung des Kindes,* Bielefeld, 1890, Anders Verlag. Both treatises contain, among other things not to be considered here, instructive examples of the rise and disappearance of that morbid mental condition to which Hack first directed notice in Germany but which elsewhere became known through the researches of the Dutch physician Guye by the name of *Aprosesia nasalis.* The third treatise is by Dr. med. RALF WIECHMANN, specialist for nervous diseases at Brunswick, and bears the title *Eine sogenannte Veitstanzepidemie in Wildbad,* Leipsic, 1890, Verlag von Georg Thieme. By St. Vitus's dance (Ger. *Veitstanz*) we understand the disease of which the well-known symptoms are involuntary muscular twitchings usually accompanied by severe or light psychical disturbances, known in medicine by the name of *chorea minor* and *chorea rhythmica,* and sometimes occurring in epidemics. At the school in Wildbad the number of the afflicted children rose in the course of time to twenty-six. Wiechmann expatiates at length in his book on the character of the contagion, and arrives through an exhaustive use of the existing literature on the subject at the result, that there was present in the individual children attacked substantially a physical predisposition, an unstable nervous system. As the first children attacked were not removed, the convulsive motions were seen and perceptually taken up by the other children, who were just approaching the period of puberty and labored under

hereditary predispositions. "Once these images had entered perceptually into the unstable brain, they became competent to operate as stimuli and to be translated into involuntary muscular motions.'

The conclusion of my letter may be taken up with the discussion of a treatise that deserves a somewhat more detailed consideration. The director of the Royal Würtembergian State Insane Asylum at Zwiefalten, Dr. F. L. A. Koch, who already possesses eminent repute in the domain of psychiatry, has just published the first part of a new work called *Die psychopathischen Minderwertigkeiten—Erste Abteilung: Einleitung, Die angeborenen andauernden psychopathischen Minderwertigkeiten*, Ravensburg, 1891, Verlag von Otto Maier. In this work the author extends the development of the ideas he some time previously outlined in his *Rudiments of Psychiatry*, second edition, 1889. In the expression "psychopathische Minderwertigkeiten" (psychopathical secondary factors) Koch embraces all those psychical irregularities, be they natural or acquired, affecting the life of the human personality, which though in the severest cases even not amounting to actual mental disorders, yet in the most favorable instances so affect the persons afflicted with them that they appear as lacking the full possession of mental normality and capacity. Primarily, of course, the treatise is intended for physicians, and the author counts on the gratitude of this profession in so far as he has undertaken to put in independent form the separate facts formerly scattered over the whole domain of psychiatry, to free them from other neuro- and psycho-pathological subjects, and to unite them into one special group of pathological states. But the author also counts on his book being used by the representatives of other professions, by pastors, tutors, teachers, jurists, sociologists, historians, and the like, and indeed with perfect justice.

The savers of souls, if they had mastered to a slight degree even the comprehension of the psychopathical secondary factors, would be astonished to see how many people there are in the case of whom medicine is more effective against "spiritual" vexations than pastoral advice, and that often such advice, being one-sided and starting from false assumptions, does harm only. They would see in the peculiarity of the religious needs and tribulations of many

a man a psychopathological abnormality; they would come to understand how the otherwise unintelligible badness of many another has its source in a pathological basis: they would not regard and hail as absolutely good, moreover, many "good impulses";—all this they would find out if they had learned to note and comprehend what the import is of such persons being descended from neurotic ancestors, of their exhibiting palpable indications of degeneration, and having also perhaps insane, idiotic, whimsical, and epileptical brothers and sisters. They would furthermore perfectly comprehend, that in the case of people who are descended from healthy parents, but who from being in times past happy and joyful Christians are now struggling with distractions of soul, it were often better first to inquire after the state of their organs of digestion. And they would be able to deal quite differently from formerly with many a soul entrusted to their care, perhaps also more easily to conquer, or at least to endure, some secret burden of their own lives. The import of the book for the educator is easily inferrible from the remarks made. For the jurist, who has to deal with the problems of accountability and the administering of punishment, its importance is manifest. Sociology, too, the deeper it enters into its problems, will not be able to dispense with psychopathology, and in this field it is precisely the psychopathical secondary factors that eminently demand attention. In that which concerns its connection with history we need only mention the names of Lombroso, Emminghaus (*Allgemeine Psychopathologie*) and Möbius (*Rousseaus Krankheitsgeschichte*), to point out the importance of a work like that before us. We recommend it without reserve to all whom it touches.

Altenburg, July, 1891. CHR. UFER.

ÉMILE LITTRÉ.

SOME debts there are that make the debtor proud;
So ours to him, who could philosophise
With common-sense, and sweep from starry skies
The brain-spun webs that darken like a cloud.

We loved him, for his highest thoughts avowed
Our own akin and less than ours allies;
Born of the common soil but born to rise
And light the labor of the laurel-browed.

Justice he traced to truth; morality,
Back to the brutish primal needs of man;
And stood himself for all the best might be.

He wrought in words, a faithful artisan;
And lived to shame their loutish mockery
Whose virtue ended where his own began.

LOUIS BELROSE, JR.

DIVERSE TOPICS.

THE ORIGIN OF THOUGHT-FORMS.

DR. H. POTONIÉ, the editor of the *Naturwissenschaftliche Wochenschrift*, Berlin, advances in one of its recent numbers (Vol. vi. 15) the following proposition concerning the origin of the forms of thought: "All the forms of thought have originated in the struggle for life not otherwise than the forms of organisms." This is further explained in the following sentence: "Those conceptions which are called *a priori*, are inherited; they have been necessarily used by the primitive thinking organisms and are now in their disposition immediately present. Yet they have been gained by experience. Without any knowledge, for instance, of space and time, no action is possible; accordingly their conception is perhaps the oldest and therefore it appears aprioristic."

I. THOUGHT-FORMS AND THE FORMS OF EXISTENCE.

We agree with Dr. Potonié that thought-forms grow naturally and that they grow such as they are, of necessity. In our opinion formal thought, with its so-called *a priori* theorems, is derived from the thought-forms by abstraction. (See "Fundamental Problems" pp. 26–60, the chapter Form and Formal Thought.) If it had been possible for other thought-forms to have originated together with those which we possess at present, and it may be parenthetically remarked that we do not consider it as possible; but *if* it had been possible, we do not deny that all the other thought-forms would have gone to the wall, they would have perished in the struggle for existence and our present thought-forms alone would have survived. In this we agree with Dr. Potonié, and a naturalist may be satisfied with this statement, because it suffices for his purposes. The recognition of the objective validity of the laws of formal thought is all that the specialist wants for this or that branch of science. But this recognition is not sufficient for the philosopher. He has to understand the problem why the subjective laws of purely formal thought possess an absolute and an objective validity for the world of real existences. He must understand not only how thought-forms originated, but also why and on what ground the laws of formal thought are considered as necessary and universal truths. The question of their

origin and growth is of secondary importance compared with the question of their rigidity and apriority.

Mr. Herbert Spencer has made the same proposition as Dr. Potonié and his view briefly expressed is this: "The laws of formal thought are *a priori* to the individual, but *a posteriori* to the race." In other words apriority must be explained by heredity. A dog cannot count, because none of his ancestors have ever counted, but a child has the faculty to learn counting because innumerable ancestors of his have counted and his brain possesses a predisposition to learn counting easily. Concerning our apprehension of space-relations which expressed as mathematical theorems appear to us necessary and are called *a priori*, Mr. Spencer says:

"We cannot think otherwise because during that adjustment between the organism and the environment which evolution has established, the inner relations have been so moulded upon the outer relations that they cannot by any effort be made not to fit them. Just in the same way that an infant's hand, constructed so as to grasp by bending the fingers inwards, implies ancestral hands which have thus grasped, and implies objects in the environment to be thus grasped by this infantine hand when it is developed, so the various structures fitting the infant for apprehension of space-relations, imply such apprehensions in the past by its ancestors and in the future by it self."

Man's ability to learn counting is inherited, and there may be more or less of it in different people. Mathematical talent is inherited just as much as musical talent or other faculties. But the philosophical question concerning the apriority of mathematical theorems has nothing whatever to do with the origin of mathematical talent. When Mr. Spencer declares that apriority is but an inherited aposteriority, this is equivalent and is intended to be equivalent to an actual denial of all apriority. His very explanation proves that he does not see the real problem, and in the same way Dr. Potonié overlooks it entirely. The philosophical problem of the apriority is not an historical problem, it cannot be solved by tracing the evolution of thought-forms. The philosopher does not ask how did thought-forms originate, but why do we attribute to the laws of formal thought necessity and universality and on what ground can we justify our assumption?

Mr. Spencer compares our apprehension of space-relations to our inherited habit to grasp with our hands and to walk with our feet. This comparison is misleading and inappropriate. That we grasp with our hands and walk with our feet is incidental. There are animals who have developed other limbs for the same purposes. There are monkeys who grasp with their tails and the elephant grasps with his nose. There is no necessity and no universality in our predisposition of grasping with our hands. Yet there resides necessity and universality in the laws of formal thought so that wherever animals develop rational thought we are sure that to them twice two will always equal four just as much as it does to us. However they may be different in other respects: they may be winged creatures or may be somewhat like our ants, they may have developed other bodily structures than we can dream of, nevertheless their arithmetic, their logic, and their mathematics will in all essentials be exactly the same as ours. There are animals whose thought-forms

are not as highly developed as in man, but there are no animals in whom they are developed differently. We must consider it as impossible even that on other stars rational creatures can be found whose reason differs from ours. To them also twice two will be four.

II. THE PROBLEM OF APRIORITY.

Kant did not call the formal laws *a priori* in order to characterise them as innate ideas, but simply to denote that their validity is necessary and universal. If I have to walk twice a distance of two miles, I know "beforehand" (i. e. *a priori*) that I shall have to walk four miles—even before I have made the actual experience. And this wonderful quality of giving information beforehand is characteristic of all the laws of formal thought. It is certain that our ability of applying the laws of formal thought has been acquired by experience in the race as well as in the individual. But their necessity has to do with experience in so far only as its recognition is the indispensable condition of all methodical experience—i. e. of science. The laws of formal thought and our recognition of their necessity and universality (alias, "apriority") are the organ of any and all scientific cognition. The methods of the sciences are exact measuring and counting based upon the faith that the laws of measuring and counting are unalterable and unfailingly reliable. We know beforehand that they will hold good for all possible cases.

Our experience of millenniums suffices to prove that the laws of formal thought agree with the laws of actual existence, and Kant's view to consider them as merely subjective and not objective appears to me untenable. We may fairly consider Kant's subjectivism as a thing of the past. And the agreement of the forms of objectivity with the forms of subjectivity is easily explained when we bear in mind that the thinking subject is a part of the objective world. It is but natural that the forms of existence are impressed upon the thinking subject as forms of thought.

Yet the question of the necessity and universality of the laws of form remains. Can we comprehend why the form of objective reality as well as of subjective thought must be such as they are, and might they not just as well be different? Is this question legitimate and can it be answered? We say Yes, the question is legitimate and can be answered.

All the laws of formal thought are products of thought-operations which are based on no other principle than that of identity ($A = A$). As soon as thinking beings have developed to that degree of thought-ability in which they are able to deal with the abstract idea of pure form, they can make constructions of pure forms. So long as these constructions of pure forms are made consistently and correctly (i. e. in strict agreement with the principle of identity), they will be found to hold good in reality and we can *a priori*—before we have made the actual experience—rely on their applicability.

The laws of pure forms (forms of thought as well as forms of existence) can satisfactorily be proved to anyone who acknowledges the principle of identity. The

principle of identity is not an assumption but it is the generalised statement of the simplest thought-operation, which, if employed with consistency, can serve as a rule for other and more complex thought-operations. Consistency is the condition of thought. Consistency produces order, and order is the most characteristic feature of thought. We create some pure form in some definite way, for instance in counting we posit a unit (we call it "one"). Now we create in the same definite way again a pure form, we again posit a unit (we again call it "one"). In so far as these two "ones" are the product of the same operation they will be the same and we express this truth in the sentence $1 = 1$ or $A = A$.

When, for the sake of assistance in the process of abstract thought, we use real objects to represent our pure forms, similarly as an abacus is employed for assisting the young mind of a child in learning arithmetic, the dissimilarity of the objects is of no account. The proposition of their identity has no reference to the material objects, but to the operation. Two operations being according to some special and definite method exactly the same, their products are also exactly the same, and the rest is not to be minded, because we have in our abstraction purposely excluded everything else.

Here is not the place to show the palpable advantages of the methods of abstract thought and especially of the abstract thought-operations with pure forms. It is sufficient to characterise its main principle of procedure. We may also parenthetically remark that from our position we are no longer in need of axioms either in mathematics or in any other formal science. The data of formal sciences are certain mental operations, viz. positing pure forms, and combining, separating, and recombining them. The subject-matter of formal sciences consists in the products of these operations. To formulate some of the simplest products in axioms is a mistake which has been pointed out by Hermann Grassmann in his *Ausdehnungslehre*.

We are struck and overawed with the cosmic order of all natural phenomena which, as science teaches, is produced through the rigidity of the formal laws of existence. The planetary system with its regularity of motion which in spite of its many complications has been formulated by Kepler in most simple laws is an object of wonder to us. This order of nature is the same order as the grand harmony that prevails in mathematics and all the other formal sciences. The most complicated laws of both, forms of nature and forms of thought, are nothing but generalisations of special applications of the principle of identity in some kind of action that takes place. While the order of the objective world excites our wonder we can understand the order of the subjective world of thought-forms and know that, being the product of certain mental operations according to the principle of identity, it must be a matter of course. Thus the intrinsic necessity of the laws of our thought-forms gives us a clue to the intrinsic necessity of the laws of nature.

III. CONSERVATION OF MATTER AND ENERGY, AND CAUSATION.

The law of the conservation of matter and energy is nothing but an application of the principle of identity to nature as a whole. And the law of cause and effect is again a corollary only of the law of the conservation of matter and energy. The law of causation is a formula which maintains that there is identity in difference. Some motion produces a change of form. There is accordingly a different state after the motion than before. Yet the total amount of matter and energy remains the same. This is the identity in the change. David Hume and with him John Stuart Mill and the empiricists misunderstood the problem of causation. Instead of considering cause and effect as one continuous process that should be analysed, they considered cause and effect separately and attempted a synthesis. In addition to this mistake, causes as well as effects were defined to be objects. Hume says cause and effect are objects following one another. Cause however is a process; it is a motion, a change that takes place, an event that happens; it is not a thing. And effect is the product of such a process. Effect is a special form, a special state of things, a special configuration, but not the material of which this configuration consists. A certain poison introduced into the stomach of a living being produces certain motions in the bowels, called cramps, which may finally prove fatal. One change produces other changes and their product is a new state of things which is accompanied with pain and ends in death. It is wrong to call strychnine the cause and a dead mouse the effect. But if we call strychnine the cause and a dead mouse the effect, we must forever despair of solving the problem of causation by a reduction to the principle of identity, for strychnine is not at all identical with a dead mouse. No cause is the same thing as its effect, and we can by no means identify cause and effect. And yet the principle of identity holds good. The identity in causation is the conservation of matter and energy in a change of form.

It has been maintained that the law of cause and effect could never be proved; it is either an innate idea prior to experience (Schopenhauer and Schopenhauer's interpretation of Kant) or it is an assumption derived from experience of which (since experience is not as yet exhausted) we cannot know whether it will hold good forever (J. S. Mill). In contradistinction to these views we maintain, that the law of cause and effect can satisfactorily be proved to anyone who accepts the principle of identity. So far as the principle of identity is recognised, all the formal laws are unequivocally determined, or popularly expressed they are as they are, they will remain so and cannot be otherwise, they are necessary. All the determining factors and also the procedure of an operation are set forth, no unforeseen events are possible, for the non-formal elements are excluded, and therefore the result will be in one case just as it is in any other. Thus it can *a priori* be stated that formal laws will always hold good.

The question has been raised: Whether or not our knowledge of the apriority of formal laws is independent of experience. We answer: In a certain sense it is

dependent upon experience, in another it is not. Historically and evolutionarily it is dependent upon experience. A store of innumerable experiences has to be gained before a rational creature will be able to make the abstraction of pure forms. As soon as this stage is attained, man possesses a world in himself. He can now experiment within himself with mental images, for instance with numbers; he can calculate. His mental operations with pure form are called "pure thought" and "pure thought" is now opposed to "experience through the senses." The word "experience" accordingly is used in two ways; it has a broad and a narrow meaning. In its broad sense it means any acquisition of knowledge generally, in its narrow sense it means knowledge acquired through the sense-activity alone. Our knowledge of the apriority of formal laws rests upon experience in its broad sense, but not upon experience in its narrow sense. We can never derive the idea of necessity from sense-impressions. John Stuart Mill in rejecting innate ideas saw no other way than to derive the formal laws from experience (taking here experience in the broad sense). Yet he did not make a distinction between formal thought and sense-experience. He considered the nature of sense-experience as typical for all experience. And thus, again, taking experience in the narrow sense of the term, he was from his premises perfectly justified in rejecting the idea of necessity. If the process of cause and effect is really a synthesis of two things represented in two different sense-impressions following each other, then indeed we have no guarantee that the same sequences will always be observed; and there may be worlds in which the law of causality does not operate. Mill saw all the consequences of his mistake, he conceded freely that we are not justified in assuming that twice two will always be four: many thousands of experiences are in its favor, but we cannot be at all sure that no case will ever happen in which twice two makes five.

The ideas of causality and of the conservation of matter and energy are not derived from experience in the narrow sense of the word, not from sense-experience, but from experience in the wider sense of the word, i. e. from sense-experience arranged with the assistance of formal laws. We should not forget that mere sense-experience exists only in our abstract thought. In reality all sense-experience is relational, it is inseparable from its form. Form and the laws of form are not something purely mental which is transferred to the world of reality, form is something real, it is objective, it is a quality of the facts and the thought-forms of mind are a part and a product of the formal structure of the universe.

The ideas of causation and of the conservation of matter and energy are not prior to experience, they are a part of experience, i. e. experience in the wider sense. They are not part of the sense-experience, but the results of our experiments with purely formal thought-operations, and being the vital instrument or organ of cognition they are the condition of all methodical experience.

IV. WHY IS MR. MILL'S PROPOSITION UNTENABLE?

In practical life we all expect that 2×2 will under all circumstances make 4, and not 5. We reject Mr. Mill's idea that there may be even a possibility of the latter. Is our expectancy really due to *a posteriori* experience which having been repeated so often in the lives of our ancestors is now so firmly rooted in our minds that we imagine it to be necessary and *a priori*? No! certainly not. The experiences of our race in the struggle for life has produced our ability of thought, but it has nothing to do with the apriority of the products of formal thought-operations. A statement of formal thought such as "twice two makes four," cannot be compared to statements of sense-experience such as that sugar has a sweet taste. There may be a moment in which the taste of sugar will be bitter to our tongue. This is quite possible. But to say that twice two might in the future or in any other world, as Mr. Mill maintains, make five is nonsensical, and the possibility of this assumption cannot be placed in one line with the possibilities of extraordinary and exceptional sense-experiences.

What does "twice two makes four" mean? Two means $1+1$, and twice two means $1+1$ plus $1+1$. This sum is called "four"; and what we call five is $4+1$. To maintain that the operation 2×2 might produce the result 5, is to admit conditions which have been excluded. Pure forms are not like animals which multiply; they are and remain such as they have been posited. When we put two amœbas into a glass and then add two other amœbas, it is quite possible that in the mean time one of the first set has divided into two. In that case we would have five amœbas. But the operation 2×2 cannot breed any additional units, so as to produce a greater number than the sum of $1+1+1+1$. Nor can we let any of these units disappear into naught, so as to produce the result 3, without committing some inconsistency in our thought-operations, for the products of our thought-operations are rigid and must remain such as they have been posited. They are not animals blessed with fertility but pure forms and nothing but pure forms.

How could Mr. John Stuart Mill overlook so palpable a contrast as that between formal knowledge and sense-experience? He was apparently prejudiced against the term "a priori," which as we freely confess is a very poor and inadequate expression. Mr. Mill himself states the cause of his prejudice in his autobiography. He says:

> "There is not any idea, feeling, or power, in the human mind, which, in order to account for it, requires that its origin should be referred to any other source than experience."

Mr. Mill was justly exasperated against anything *a priori*, for in his time, it had become customary among certain philosophers to classify all pet superstitions which could not be proved by experience as a priori. Mr. Mill continues:

> "Whatever may be the practical value of a true philosophy of these matters, it is hardly possible to exaggerate the mischiefs of a false one. The notion that truths external to the mind may be known by intuition or consciousness, independently of observation and experience, is, I am

persuaded, in these times the great intellectual support of false doctrines and bad institutions. By the aid of this theory every inveterate belief and every intense feeling, of which the origin is not remembered, is enabled to dispense with the obligation of justifying itself by reason, and is erected into its own all-sufficient voucher and justification. There never was such an instrument devised for consecrating all deep-seated prejudices."

We appreciate the cause of Mr. Mill's prejudice, but we cannot agree with him. And Mr. Mill is mistaken when he imagines that a rejection of apriority will abolish false doctrines and superstitions. On the contrary. The recognition of absolute necessity based upon the universality of formal thought will alone be a safe basis of science through which we can reject *prima facie* the wrong pretensions of superstitions and pseudo-science. If we assume with Mr. Mill that all formal knowledge partakes of the nature of sense-experience, that there is no difference between the two, no general judgment would be allowable and the idea of necessity would be inadmissible. These consequences are accepted by Mill. In that case science would lose its value and philosophy would be without foundation. The most absurd superstition could not be rejected off-hand on the ground of being contrary to that which through logic and other formal sciences has been found to be necessary and a condemnation of any superstition on the part of science would be mere arrogance. Pseudo-science would have the same right with true science.

It is obvious that without being obliged to consider the apriority of formal laws as innate, we need not accept the consequence of Mr. Mill's philosophy. We can and we do retain the idea of necessity and we consider it as the corner-stone of all science.

V. THE MEANING OF "NECESSARY."

We have to be on our guard lest we introduce some mystical element into the idea of necessity. There is nothing mystical about necessity. Necessary means that a certain operation, if it is exactly the same operation as another one, will produce exactly the same result. When we posit two units twice, we shall have the same result as when we posit one unit four times; and we call this result four. We shall reach the same product whenever we repeat the same operation. Knowing that we shall always reach the same result, we can, *a priori* (or beforehand) and with certainty, determine the result of certain operations after we have mentally gone through the same operations for all possible cases and under any imaginable conditions. That a perfect apriority with an unfailing certainty is possible only in the domain of formal thought is natural. The reason is that we know our thought-forms exhaustively. They contain nothing but that which has been predicated about them. Our sense-experience however is always piecemeal and never exhaustive.

Comprehension is actually a tracing of form relations and a formulating them in concise statements. The scientist's work is based upon the methods of measuring and counting (i. e. the methods of formal sciences) and he undertakes to show that certain phenomena, different in some respects, are the same in other respects, that their sameness can be stated in a comprehensive and exact formula. In this

way he marks out their determining factors in terms of formal thought (for instance in numbers), so that we can compute them and predict them according to their determining factors, so that we can know, according to their conditions, that they will be always as they are.

The importance of formal thought is paramount in science and the problem about the necessity which attaches to the laws of formal thought is the fundamental problem of philosophy.

There are many philosophers, still, troubling themselves to solve the problem in the fashion of Schopenhauer or of Mill or looking upon the problem as insolvable. We do not doubt that the solution here presented is the only possible solution which as soon as it is understood will find a general acceptance.

Must it be added that the solution of this fundamental problem does not involve the ready solutions of all other minor problems? Oh no! We all know that the solution of one problem is only a stepping-stone for attacking other problems. The possibilities of progress are as unlimited as the scope of cognition. Light on this general subject gives us hope that we shall succeed in throwing light also upon other subjects which are still shrouded to the philosophical inquirer in impenetrable darkness.

VI. MODERN LOGIC.

The problem of modern logic is at bottom no other problem than that of formal thought and of the origin of thought-forms. Professor Dewey in the excellent essay which appears as the leading article of this number says: "Any book of logic will tell us what this conception of thought is: that thought is a faculty or an entity existing in the mind apart from facts and that it has its own fixed forms with which facts have nothing to do—except in so far as they pass under the yoke." This is the old conception of thought, rightly criticised by Professor Dewey, for, closely considered, it turns out to be dualistic. However, as soon as a proposition is recognised to contain or to rest upon dualism, it becomes a problem. The problem of modern logic is, How can we arrive at a monistic conception of logic, how can we rid ourselves of the dualism on the one side of facts not yet rationalised by the method of thought-forms and on the other side of mind with its empty thought-forms assimilating facts to its own nature.

Our solution of the difficulty has been proposed, in the sense outlined by Professor Dewey, in "Fundamental Problems." Professor Dewey, according to our opinion, is right when he says there is no such a thing as transcendental thought, or pure thought, thought by itself. And there is no such a thing either as fact, crude irrational chaotic fact. The world of fact, indeed, is a cosmos and no chaos; there never was a chaos and never will be a chaos, for the laws of form are an essential and the most characteristic feature of the world.

Can there be any question how the order found in thought-forms originates in a world in which the inorganic and unfeeling mineral crystallises in a regular shape

according to strict mathematical laws, i. e. the laws of form? A world in which the plant grows not otherwise than according to strict mathematical laws building up roots and stem and leaves and petals and stamens and all other organs obedient to a certain plan which will vary according to circumstances, but throughout consistent with the principles of formal laws? Can there be any question that in this world of cosmic harmony thought-forms will develop in feeling beings as a microcosm exhibiting the same regularity and conformity to law as do in this world all other things animate and inanimate? Our pure, i. e. merely formal, thought is an abstraction which serves the purpose of comprehension. And so is the concept "matter," being that which produces sense-impressions. There are no such ghosts as pure matter or pure thoughts in reality.

Modern logic, so far as we conceive it to be right, is by no means an overthrow of the old formal Logic, generally called Aristotelian. It is simply an amendment made in order to exclude an erroneous interpretation. And so is modern mathematics not so much a revolution as an extension of the old Euclidian system. It is a revolution only against a certain unclear conception of mathematics according to which this science is said to rest upon axioms, these axioms representing absolute truth—unprovable, incomprehensible, and mysterious.*

The main truth of monism is that reality forms one indivisible whole and all our concepts are mere abstractions representing certain parts or certain features of the whole. As soon as we try to think of any of them as things in themselves we become involved in inextricable contradictions. It appears as if the formal sciences contained some truths which were absolute and independent of actual reality. But let any one think of any number, of 2 or 3, and he will soon find that conceived as absolute beings they are meaningless and unthinkable.

This is not to say that numbers are phantoms, but that conceived as absolute beings they are phantoms. Numbers and all formal concepts represent something real, they represent pure forms. And form is as much a part and feature of reality as is matter and energy. P. C.

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*Hermann Grassmann, one of the founders of modern mathematics, has called attention to the fact that Euclid had a clearer conception of the fundamental concepts of mathematics than his ill-informed translators and interpreters. Grassmann says in his *Ausdehnungslehre*: "From the imputation of confounding axioms with assumed concepts Euclid himself, however, is free. Euclid incorporated the former among his postulates (αἰτήματα) while he separated the latter as common concepts (κοιναὶ ἔννοιαι)—a proceeding which even on the part of his commentators was no longer understood, and likewise with modern mathematicians, unfortunately for science, has met with little imitation. As a matter of fact, the abstract methods of mathematical science know no axioms at all."—Quoted from *The Open Court*, Vol. II. No. 77, *A Flaw in the Foundation of Geometry*, by Hermann Grassmann, translated from his *Ausdehnungslehre* by μκρκ.

BOOK REVIEWS.

BELIEF IN GOD. Its Origin, Nature, and Basis. Being the Winkley Lectures of the Andover Theological Seminary for the Year 1890. By *Jacob Gould Schurmann*. New York: Charles Scribner's Sons. 1890.

The learned Sage Professor of Philosophy in Cornell University, after tracing the historical origin and development of the belief in God, expresses his conviction that the problem of the modern theist consists in the union of the Aryan and Semitic modes of interpreting existence. We shall then have "a synthesis of the Father of all spirits with the ground of all nature." This is the hypothesis developed in the course of the lectures delivered by Professor Schurman last year before the Andover Theological Seminary on the Winkley foundation, that form the contents of the present volume. The theism embodied in that hypothesis is called by the author *anthropocosmic*, because, while it is based on the facts of the universe and those of human nature, the universe must be interpreted in the terms of man, and not man in the terms of the universe. The key to the universe is the self-conscious spirituality which makes us selves and persons. Hence anthropocosmic theism is the doctrine of a Supreme Being "who is ground both of nature and of man, but whose essence is not natural but spiritual."

Before considering the evidence for this hypothesis, let us see what the author has to say with reference to the logical character of the belief in God. He shows that *agnosticism*—of which he treats under its three significations as referring to the method of knowledge, the object of knowledge, and the subject of knowledge—is not consistent with the insight into nature and the constitution of knowledge gained by the Newtonian method of hypotheses and verifications. Science, as opposed to pure phenomenalism, assumes that what has not originated in the percipient subject is objectively real, and it postulates the universality of law in nature, a postulate which is the expression of a conviction of "the unity and universal inner connection of all reality." The objective world cannot be understood without reference to our own conscious experience, and as the only reality we know from the inside is a spiritual *ego*, self-conscious spirit must be ascribed to the one ultimate reality whose existence science assumes, as that which will alone satisfy the requirement of unity in the midst of change.

It might be objected here, that the existence in man of a spiritual *ego* requires proof before that of a universal spirit or world-soul can be inferred from it. The author takes the existence of the *ego* for granted, a course which is quite allowable from the theistic standpoint, although, in the face of what is now known as to the dissolution of the ego under abnormal conditions of the organism, not scientific. Having made that assumption and inferred the existence of God from that of the human spirit, the author explains the nature of the one by reference to that of the other. He tells us, that the finite spirit is identical, within the limits of its range, with the infinite spirit, because it is an *ego*, and that in the *ego* we have, not merely a mode of the divine activity, but a part of the divine essence. Such being the case, the author has no difficulty in inferring the attributes of God from the phenomena exhibited by man. Thus God is a God of righteousness because the moral capacity in the human spirit must have its ground in the infinite Spirit. Again universal benevolence or love is the ideal of which human morality is the realisation; hence we must conceive of the Spirit of the universe as a God of love.

We do not think the author's final conclusion, that "the phenomena both of the universe and of human life require the thinking mind to postulate a Supreme Ground of things which we are entitled to describe as self-conscious Spirit and loving Father," is warranted by his premises. But we can accept the statement that our knowledge of God must continue to grow with our knowledge of man and nature. Through these alone can we know Him, but the difficulty is to interpret the revelation. Let it be admitted also that the end of nature is the production of man, and that what is referred to by the author as the human spirit is "the organ of that communication of God which is the end of the universe." This does not in reality throw any light on the nature of God. The utmost that can be said is that, as man is an organism possessing certain functions, the universe, viewed as God, must have an organic existence with functions *corresponding* to those exhibited by the human organism.

The author's reasoning in support of the belief in God as cause or ground of the world, and as realising purpose in the world is very ingenious. He affirms that the creational form of the argument from causality is insufficient. It satisfies the devotional needs of a certain class of worshipers, but what the religious, as well as the scientific, consciousness demands is a God "here in the world, not there outside of it or making it." It has not yet been shown that the universe has had a beginning in time, and the argument in favor of the eternity of matter ends with an assurance of the eternity of spirit alone. Spirit is the eternal reality, and nature its eternal manifestation, the latter being no more separable from the former "than the spoken word from the thought it symbolises." The causal relation is, however, absolutely necessary for our apprehension of the facts of the universe, and as it cannot be interpreted without contradiction as an action between independent beings, it must be explained as the eternal dependence of the world upon God. This implies that God must be volitional as well as self-conscious; "for without

will there could be no activity, no efficient causation, no material universe." The universe is thus the eternal expression of the divine will. But what is the purpose realised in creation ? The activity of the divine will precludes the notion of a blindly working nature. As creation is the eternal self-revelation of God, the supreme and preconceived end of all things must be the glory of God. But man is indispensable for the attainment of God's glory, and therefore the end of nature as a realised scheme of divine ideas is the production of man. The volitional and teleological arguments as thus stated by the author are consistent with the theory of evolution developed by Darwin, but they may be combatted on other grounds connected with the conditions of the existence of God as one with Nature. With this observation, we must leave Professor Schurman's very thoughtful book which, although for the reasons we have stated, not conclusive, presents the theistic argument with great clearness and in its strongest form. Ω.

Judaism and Christianity. A Sketch of the Progress of Thought from Old Testament to New Testament. By *Crawford Howell Toy*. Boston: Little, Brown & Co. 1890.

This work is another contribution to that genuine history which is alone competent to impart any true instruction. In it the author undertakes to give an account of the genesis of Christianity as a child of Judaism.

It seems to be the thesis of the author that those conceptions and beliefs that characterise any form of religion are rather determined by the social evolution than that the social progress and its features are determined by the evolution of ideas among which the religious ideas are specially influential. In his introduction the author sketches out his view of the general laws of social progress as the same are related to religious thought. He notices in history the tendency of ethnic religions to give way to or to develop into universal religions, and argues that Christianity is destined to overcome all its rivals and prevail universally. This kind of a conclusion is a natural one to follow from the theory that the character of thought is determined by social circumstances and progress. But if it be true that the special course of the evolution of thought and its characteristic form at any epoch is determined by causes that are uncontrolled by social conditions, that as between thought and society thought is the masterful factor, then quite another conclusion may ensue. But the dubitable nature of the main thesis of the work does not much detract from the great excellence of the work in general. As a history of the evolution of Jewish religious conceptions and beliefs from the very first until the establishment of Christianity, it is in the highest degree interesting and instructive.

After a discussion of the literature of the Jews and the formation of the canon, the author proceeds to describe in full detail the nature genesis and mutations of the cardinal religious doctrines as they revealed themselves to the Israelite, Jewish, and early Christian insight. The entire body of the data are interpreted in consonance with the modern scientific idea of the organic nature of society. Jesus is

regarded as the master spirit that created the Christian Church, and Paul whom many would install as the real author of the same is accordingly given only a second place. Altogether it may be said that Professor Toy has given us a most valuable contribution to religious history and to the scientific interpretation of the same. *ρσλ.*

PRONAOS TO HOLY WRIT. Establishing, on Documentary Evidence, the Authorship, Date, Form, and Contents of each of its Books, and the Authenticity of the Pentateuch. By *Isaac M. Wise.* Cincinnati: Robert Clarke & Co. 1891.

Rabbi Isaac Wise, the president of the Hebrew Union College of Cincinnati and the Nestor of Orthodox Judaism in America, presents in the "Pronaos to Holy Writ" a review of the Biblical books with comments as to their authenticity and the times in which they were written. Having read these "books and every word thereof in the original for a term of sixty-six years, i. e. from boyhood up to his seventy-second birthday," and having "acquainted himself with all the ancient versions and commentaries and a large portion of the modern translations and commentaries of the Bible," the author is entitled to be heard. Rabbi Wise is a stern monotheist and he declares: "God only did create light out of darkness; man cannot produce truth out of fiction, unless in his self-delusion problematic truth satisfies him. All so-called gems of truth buried under the quicksand of fiction and deception are problematic at best, if not supported by authoritative corroborants." This is true. All truth depends upon verification. We cannot make truth, but must find it, we must be able to corroborate it, and the corroborants of truth are its authority. Dr. Wise's idea of a corroborant is different from ours, he says: "No one can speak conscientiously of Bible truth before he knows that the Bible is true, and especially in its historical data." This seems to indicate that we must have a belief in the truth of the Bible before we investigate it and that moral truths, the ethics, the philosophy of the Bible depend upon its historical data. We cannot go so far with the author of the Pronaos. Dr. Wise says: "The science commonly called Modern Biblical Criticism, actually Negative Criticism which maintains on the strength of unscientific methods that the Pentateuch is not composed of original Mosaic material, no Psalms are Davidian, no Proverbs Solomonic, the historical books are unhistorical, the prophecies were written post festum, there was no revelation, inspiration, or prophecy, must also maintain that the Bible is a compendium of pious or even impious frauds, wilful deceptions, unscrupulous misrepresentations." Dr. Wise thought it necessary to meet Negative Criticism with the documentary evidence and for this purpose he wrote his Pronaos, which is to be an entrance-hall to the Temple of Biblical Truth. We do not side with the negativism of certain biblical critics, for we believe that historical investigations have proved large portions of the Pentateuch to be Mosaic, several psalms to be Davidian, and the historical books to contain as much history as many old historical books contain. We believe that they have to be judged and searched and commented just as much and in the same spirit of scientific inquiry as our philologists

treat Herodotus or Livy. But the value of the Bible, in our opinion, does not depend upon the acceptance or rejection of these or those historical data; nor is it necessary to consider the Hebrew prophets as special revelations of God, in contradistinction to the divine revelation in nature and the history of mankind in general. It may be true enough that the orthodox God-idea of Monotheism depends upon the belief in special revelation and prophecies, and it is also true that most of the Biblical criticism has been destructive and negative. But there is a way possible between both standpoints which may be called positive criticism. This positive criticism attempts to understand the very life and meaning of the old religion, it attempts to comprehend the belief of the orthodox and construe it in the terms of science—i. e. of rational and clear thought. Religion is certainly not a mere fraud or a vain illusion, it is an ideal which developed naturally out of certain needs of man and the conditions of society. That religious ideas, especially the idea of God as the cosmic power which represents the moral authority, are no mere fictions, is proved by their survival, and those who believe in evolution should not be blind to the fact that there is something good, something true, something well adapted to surroundings in religion. To find these elements of truth and goodness which constitute the life of religion is not mere negative criticism, but positive criticism, and it is not at all necessary for those who aspire in this direction, to believe in any historical data, or in special revelations, or in prophecies, or in the personality of God, but simply to trust in truth. Truth is the only way of salvation even though it may shatter the most sacred idols of a venerable orthodoxy.

The contents of the book show that the standpoint of the author does not blind him to the finer traits of the natural development of his religion. So, for instance, Solomon's rationalism is excellently contrasted with the spirit which manifested itself in the Judges as well as the Prophets. The author of the Judges was an outspoken theocratic democrat. "He literally pours out his abhorrence of the monarchical anti-theocratic institution in narrating the story of the first usurper Abimelech, the son of Gideon. . . . Entirely different are the language and tendency of the two appendices, evidently written by another author, who evinces his animosity to the democratic form of government by saying four times: 'In those days there was no king in Israel,' to which he adds twice 'every man did what seemed right in his sight'" (p. 46). "The Solomonic ethics is a commentary on the Mosaic ethics, as by reason understood. . . . Man's knowledge of ethical doctrine is identical with his knowledge of God's moral attributes, and all moral obligation has its root in the Mosaic God-idea. . . ." According to Solomon "wisdom based upon and rooted in the fear of Jehovah with the revealed material before them was all-sufficient, without any further special oracles of any prophets. This peculiar rationalism brought upon him the ire of prophets and rabbis" (p. 111).

Some reviewers of Dr. Wise's book will probably find fault with him that he has taken little if any account of the results of modern biblical investigations. And this is a grievous fault in our times where it seems to be essential for a scholar and

author to have read the very latest things published on a subject while an acquaintance with the views of the classical old authorities is considered unnecessary. It appears that Dr. Wise did not intend to present his views or criticisms of and his answers to the latest biblical investigations. It may even be that he is not familiar with many of them. Granting this to be a fault of his book it is, nevertheless, refreshing to us to find an author who has actually read and is excellently familiar with all the old sources of the subject he is writing upon. κρς.

The Foundations of Geometry. By *Edward T. Dixon.* Cambridge (Eng.): Deighton, Bell & Co. 1891.

This work is divided into three parts, the first containing such doctrines of psychology and logic as the author deems sound and useful for his purposes, the second exhibiting the author's "subjective theory of geometry deduced from the two fundamental concepts *position* and *direction*," and the third "on the applicability of the foregoing subjective geometry to the geometry of material space."

In his preface the author expresses his desire that those who criticise his work shall "consider categorically" certain questions relating to his theory of definition, to the definitions and axioms prescribed by him, to his proofs of propositions and to the "objective applications" of his three axioms.

Geometry may be studied for two distinct purposes, neither of which necessarily involves the other. Unless the aim is mainly the discipline of the logical faculty, it is plainly a poor method of study to pore over the definitions, axioms, postulates, theorems, problems, and demonstrations of Euclid or any similar textbook. Practical resources and geometrical information can be acquired much better and more rapidly by a course of mechanical drawing with here and there a more or less loose explanation of the grounds and reasons that warrant the geometrical doctrines, than by means of the Euclidian course. Under such a method of instruction the student would rarely feel any real doubt as to the truth of his geometrical knowledge.

But where the paramount aim is the training of the reason the Euclidian rigor is all important. Hence the perfection of that method by the discovery and certification of the ultimate grounds on which, and the principles by which, it may be unfolded systematically and in necessary and sufficient sequence without presumption or fallacy, is an object of the most momentous concern to science, to philosophy, and to culture in general. For it is well known that however good an account elementary geometry may give of its superstructure the reports given of its foundations are all very far from satisfactory.

Repeated and strenuous efforts have been made, and by the most competent of our race, to discover and certify the true state of the case in respect to the geometrical foundations, in order that the whole edifice of that science shall display throughout the same thoroughgoing necessity and sufficiency that distinguishes it in general.

The author of the work under review is persuaded that he is now able to perform this so desirable service. He avers his belief that the system of geometry he "has set forth in this book is *logically sound* and that consequently the more it is "discussed and criticised, the more firmly will it become established." He takes his stand upon two fundamental concepts, *position* and *direction*, which he defines not explicitly but "implicitly." This leads us to consider his first question and his theory of definition.

The embarrassments that involve the foundations of elementary geometry are mainly, if not wholly, those which involve the general problems of definition. Now a definition is the certification of the purport of a name by means of a statement or a conspiracy of statements necessary and sufficient to that end. But names are constituents absolutely necessary for the formation of any statement, so that the above definition of a definition may be restated thus: A definition is the certification of the purport of one name by means of other names, necessary and sufficient to certify the purport of the one defined. Evidently then, definition can only lead us from name to name in unending process, or to some undefinable name, or to some name that we choose to leave undefined; and the question arises, on what sort of names shall we take our stand as ultimate grounds?

Our author answers this question as follows: "The propounder of a scientific "theory is not of course expected to teach his readers to speak, it is only necessary "for him to define the terms peculiar to his science, or those to which he wishes to "attach peculiar meanings. He may therefore assume that the meanings of all "other words are known to his readers."

He then propounds that "all that is logically required for a definition is one "or more assertions with regard to the word to be defined or its attributes," provided "they are not demonstrably incompatible with each other."

Although our author conceives that logical competence requires no more than this for a good definition, he yet goes on to remark, that "if the definition is to "form the basis of a deductive science it is further advisable that the assertions "should be independent," and that "where it is required to define a term whose "denotation is already known, it is further necessary not only that the assertions "should be commonly accepted as true with respect to it, but that they should re-"strict the meaning of the term exactly to its accepted denotation, neither more "nor less, and should do so in the simplest manner that can be devised."

It is upon this theory of definition that our author requests of his critics a "categorical" answer to his first question, "Do you accept the requirements I have "laid down for a logical definition? (If not please state which of them you object "to, why you object to it, and what you would propose to substitute for it.)"

Since it is a "categorical" answer that is requested and since also it is the matter of definition that is put in issue, we wish that our author had been more definite and had made his propositions better issuable, for we must protest that we

regard ourselves obliged to answer to what we can best conceive to be the author's true meanings rather than to what he has explicitly said.

We do not conceive that he regards it as *necessary* to a definition that the defining assertions should be expressed "in the simplest manner that can be devised." We have also to take his use of the word "restrict" as importing completion as well as limitation, and his use of the word "requirements" as intending conditions that together are sufficient as well as necessary.

If we are right in our understanding of the meanings of our author he contemplates four cases, first, the definition of a name that has no denotation already known and that is not to form the basis of a deductive science, second, the definition of a name that has no denotation already known but which is to form the basis of a deductive science, third, the definition of a name that has a denotation already known but which is not to form the basis of a deductive science, and fourth the definition of a name that has a denotation already known and is to form the basis of a deductive science.

In this fourth case our author deems it requisite for a logical definition that there shall be made one or more assertions about the subject of definition that are not demonstrably incompatible with one another, that are independent of one another, that are commonly accepted as true in respect to the subject defined and that "restrict" the meaning of the name under definition exactly to its accepted denotation.

It seems to us that this last requirement dispenses with the necessity of all the rest. If we have provided an assertion or a set of assertions that do in fact complete and limit the meaning of the subject of definition exactly to its proper denotation that is a definition in full. It implies that the defining assertions are all consistent with one another, and in case any assertion is dependent upon one or more of the rest that is a circumstance wholly immaterial. *Utile per inutile non nocetur.*

Again, what is it to be commonly accepted as true? Does logical competence depend on the altering states of our knowledge or on the fluctuations of opinion? Was a whale logically defined as a fish before we learned that it was a mammal?

The third case allows of the application of the same comment as that made upon the fourth. But in the first and second cases the doctrines of the author as well as his suppositions are very notable. He supposes the anomaly of names without any known denotation, by which he may mean those which have no application whatever. In respect to such he propounds that they may be given a logical definition by making one or various consistent assertions as applicable to them or to their attributes.

"The proof of the pudding will be found in the eating," as our author says. So let us say that a troft may be perceived whenever our attention is excited, and that trofts are of multitudinous variety. Do these assertions constitute a logical definition? It is a prime requisite for a definition that the defining assertion or assertions shall have a meaning, which is the same as to say that names must be

employed that are already significant. These significant names must be so used that the intellectual sensibility shall be excited to perceive in a determinate way that which is intended to be defined. In other words, sense and not nonsense must be produced in the mind that considers the definition. Perhaps, however, our author intends such words as electricity, or spirit, or energy.

Because of the considerations above indicated and others we cannot accept the author's requirements for a logical definition as a whole. Some of them are in some of his cases unnecessary, while taken together they supply no new means whereby to solve the several problems of definition.

The author's subjective theory of geometry is plainly the outgrowth of his confidence in the solvent power of the concept of direction as a prime datum of geometry.

Everything of consequence in his essay depends upon the worth of this concept as a geometrical foundation. Considering the disparagement that has been visited upon that concept by numerous writers of good geometrical rank we naturally look for considerations tending to remove the discredit that has befallen that notion. Instead however of this we find the most palpable set of circular definitions. Direction is defined by direction in the most distracting way, thus:

"(*r*) A direction may be conceived to be indicated by naming two points as the "direction from one to the other."

The inaptitude of the term direction for use in geometry is rooted in its ambiguous purport. As commonly used it means at least three distinct but closely associated notions which become confused in thought and expression unless the most solicitous care is taken to distinguish them. When we speak of the direction of one point from another or of the direction from one point to another we mean the straight off-ness or from-ness or to-ness which one bears to the other; in other words a relation of separation and straight mediation. When again we speak of the direction of a motion we intend the indefinite straight sense of its procession, which is not a relation but an attribute of the motion. When still again we speak of the direction of a line we mean its straight *lay* as compared or as comparable with other actual or possible correllates which is again a relation but not necessarily the same relation as that that obtains between two points.

In all these meanings the notion of straightness is involved, and could we say in lieu of straightness first directness and then direction and holding fast in thought this sense of the word, make a noun of it, so that a direction would intend the same as a straightness and no more, it might obtain a useful geometric term and notion.

To define it we might first define a line thus: A line is a space boundary that is indefinitely long but not otherwise of any extent. Then, a direction is a line such that between the points that bound any assigned parcel of it no copy of said parcel is possible.

But direction purports to our author the second of the meanings above set forth, namely, the indefinite straight sense of the procession of a motion. Definite parcels of a direction thus understood are identical with vectors.

Now the notion of straightness is after the notions of point and line the most fundamental one of geometry and the one which is altogether the most prominent and useful. It is the necessary means for any definition of a vector or of the notion which our author deems so important. As straightness is attributable only to lines and long things which a line may represent it makes no difference whether we define straightness or a straight line, but a masterful performance of this definition is absolutely necessary before the foundations of geometry can be abidingly certified.

Our author defines a straight line thus: "A straight line is a continuous series "of points extending from each of them in the same two directions." What kind of a thing a continuous series of points may be we are not told but as a point is defined to be "a portion of matter so small that for the purpose in hand variations "of positions within it may be neglected" we take it that a straight line is a continuous series of particles of matter. The "purpose in hand" in this case must of course be the purpose of geometry.

In defining an angle our author first lays down that "The difference between "two directions is called their *inclination* to one another" and then "The measure "of an inclination is called an *angle*."

Considering that it is the doctrine of the author that every straight line has two contrary directions the measure of whose inclination is an angle of one hundred and eighty degrees, we imagine a northeast southwest line cutting an east west line and wonder if the right hand upper angle is really two angles according to whether or not the directions both pass to the left or both pass to the right or pass one to the left and the other to the right.

Were this an ordinary work we might regard it as due to the author to notice the many excellencies which characterise it, in spite of the defects which we notice. But as our author evidently realises, the eminent dignity of the topic challenges and its singular importance demands unsparing criticism. He who offers to instruct the world on the foundations of geometry draws his sword and throws away the scabbard, and like a doughty champion he will scorn to accept any favor, prizing only such success as he shall take at the point of an efficacy of treatment that conquers all competent and candid criticism.

Stringent as are such terms of contest an author who is a worthy competitor in the field of geometric research can be well content with them in the perception that the very same conditions apply in full force to the comments of his critics.

The author is undoubtedly an able man and a close thinker. He has concentrated his mind upon a work that is worth the energy of a lifetime. But we must confess our judgment to be that in spite of his capacity and evident devotion he has come short of the high result to which he has aspired. ρσλ.

LES FETES DE MONTPELLIER. PROMENADE A TRAVERS LES CHOSES, LES HOMMES ET LES IDEES. By *J. Delbœuf*. Paris: Félix Alcan.

We have here a charming narrative by the well-known Professor at the University of Liège of his visit to the fêtes of Montpellier, undertaken in great measure to make the personal acquaintance of M. Dauriac, the critic in the *Revue Philosophique* of the author's work "La matière brute et la matière vivante." The description given of the fêtes, which marked the sixth centenary of the University of Montpellier, is very entertaining, as is the account of the journey through the South of France; but as M. Delbœuf says that he was more curious to become acquainted with men than with places, what he tells us about the former will be the more interesting.

The author, with the companions of his tour, could not pass Nancy without stopping to see "the masters in the science of hypnotism" there. An account of what he saw and heard gives the author the opportunity of repeating "That he does not regard forgetfulness on awaking as characteristic of profound hypnosis, and that experience is against the efficacity of criminal suggestion unless the subject is criminally inclined." The fêtes at Montpellier commenced with a religious service in the Cathedral, during which the Bishop, M. de Cabrières, preached a sermon so liberal in tone, that M. Delbœuf thinks the time is arriving when the church will demonstrate that Moses was the precursor of Darwin. At the University reception which followed, M. Delbœuf sought out among the professors for his friend M. Dauriac, whom he had figured when first he heard from him as small, thin and dark, but now found, in accordance with the usual rule in such cases, that he was tall, robust and fair. In the course of their subsequent conversations the two Professors made mutual confidences, M. Dauriac confessing that his true vocation was music, and that he was preparing a work on the psychology of the musician; while M. Delbœuf informed his friend that he was about to reply to his criticism of "La matière brute et la matière vivante," and that he would throw the greatest light on the origin, which was still obscure, of life and death. If the genial Liège Professor can do this, he may be the first to reap the benefit referred to in his own words: "The discovery of the cause of death could not fail to assure the immortality of its author and its inspirer, and sooner or later that of humanity at large." For, according to a medical adage, if the cause of a disease is known it is already conquered.

Montpellier was honored during the fêtes with the presence of Helmholtz, to whom but for national jealousy would have been confided the part of speaking in the name of the foreign universities. Nevertheless he was the true hero of the occasion, and when at the official reception, on the President of the Republic shaking his hand and saying a few gracious words someone feebly hissed, Helmholtz received in response a perfect ovation of applause. M. Delbœuf met with a congenial spirit in the Professor of Zoology, M. Sabatier, who has a laboratory at Cette. Their views on freewill were in sympathy. They agreed in allowing freedom not only to the superior animals, and to inferior animals and plants, but even to so called inor-

ganic matter. M. Sabatier is a Christian and at the same time a convinced transformist; having arrived at his views from religious considerations. He cited M. Dauriac as saying, "The reign of determinism is not in the objective world; its empire extends itself over nature only after having been exercised over thought. There is no other necessity than that of logic or mathematics." M. Delbœuf is evidently an "indeterminist" by nature. He heartily sympathised with the students in all their demonstrations of freedom, although one of them assumed a somewhat serious character. Dining in the open air with M. Millaud the author of an article in the *Revue Philosophique* on non-Euclidian geometry, he was prepared to talk mathematics. The surroundings were too much for him, however, and in recalling the scene he cries, "To the devil with philosophy and mathematics! I cannot recall what we said; in my remembrances, I see only blooming faces, I hear only the indistinct bursts of gaity." M. Delbœuf's sympathetic nature is shown in the fact, which he records, that wild animals in confinement soon become familiar with him.

One of the principal objects of the author's journey was to see M. Gabriel Tarde, "one of the most prolific and original publicists in France, if not in Europe," who resides at Sarlat. After quoting passages from an article of M. Tarde on Social Darwinism, which appeared in the *Revue Philosophique*, M. Delbœuf remarks that nothing is more attractive and at the same time more fatiguing than the reading of his works. M. Tarde is "the locomotive that carries you to the end of your journey across countries by turns wild, agricultural, industrial, picturesque; but without giving you time to regard and admire." Referring to M. Tarde's acute criticisms of Lombroso and his theories, the author says, "It is not that he strikes the pseudo-thinker with formidable blows, but he makes him drop gently to the ground." The French publicist sees in *imitation* the source of social life, and he has been long engaged in developing the idea, to the great importance of which M. Delbœuf bears witness; although he objects to the use which M. Tarde makes of terms taken from mathematics, physics, and biology, to express his sociological views. On the question of freewill there was no agreement. Although the latter is a determinist, he believes in penal responsibility, on the ground of personal identity; the diseased person or the madman is no longer himself, in which they differ from the criminal.

We can say nothing of M. Delbœuf's visit to the canons of the Tarn. Here was captured a lizard which displayed, when compared with a Spanish lizard in captivity with it, as much difference in character as could be found between two men chosen at hazard, The author concludes an amusing description of the habits of the two captives by recommending their history to the politicians and the historians of France and Spain, as likely to throw light on that of the peoples themselves. We leave M. Delbœuf, whose book of seventy-five pages may be said to be as full of interesting matter as an egg is of meat, with quoting his postscript: "On the day that these lines appear (March 1891) the Spanish lizard has finally cast off his savage character and follows in the footsteps of the French. Effect of imitation." Ω.

DER POSITIVISMUS VOM TODE AUGUST COMTE'S BIS AUF UNSERE TAGE (1857–1891). By *Hermann Gruber*, S. J. Freiburg im Breisgau: Herder'sche Verlagshandlung. 1891.

This pamphlet of 194 pages is the continuation of another pamphlet on August Comte, the founder of Positivism, which was reviewed in *The Open Court*, No. 134. The author is a Jesuit and it is a matter of course that all the facts he relates, all the doctrines he explains are represented from the standpoint of Roman Catholicism. The booklet is of great importance in so far as we learn through it what an erudite Catholic mind thinks of that recent movement of philosophy which has been called by the collective name Positivism. The method pursued by Hermann Gruber is most recommendable. He states facts and quotes abundantly so as to let the various philosophers speak for themselves. He is economical with the salt of his own opinion, yet he uses it with such a discretion that Roman Catholics can become thoroughly acquainted with infidel views without suffering in their faith.

The book consists of two parts: (1) The Positivism of the schools in connection with Comte and of the Positivistic movement outside of these schools. The first part begins with a discussion of Littré. Littré, "the voice, the spirit and the soul of Positivism," as Bourdin calls him, is characterised as a philological genius. Although he had chosen the medical profession, which however he abandoned early, and although he regarded the propaganda of the positive philosophy as his life-work, all his talents lay in the direction of special investigation in the literary, historical, and linguistic fields, and the editing of the French dictionary remains his main achievement.

Comte had not nominated a successor who should in his place be the *Directeur du positivisme*. Littré had forfeited this honor on account of his quarrels with Comte in which he strongly sided with Madame Comte against her husband. After Comte's death P. Lafitte was elected as a temporary director and he has kept this office ever since, which he conducts with remarkable devotion and unselfishness. Although without property himself he proposed not to use the positivistic funds until he had shown himself through his work worthy of using them. He ekes out a scanty living for himself by giving lessons in mathematics, and devotes all the rest of his time to the management of and the propaganda for the Positive Church. His co-workers are Audiffrent, Antoine, Robinet, and others—all of them as the reviewer thinks strange people, visionary enthusiasts, and, to use an expressive Americanism, regular cranks. Lack of space prevents us from recapitulating their ceremonies, their sacraments, festivals, pilgrimages, memorials, and other forms of service. Their whole behavior proves that they are and will remain infidel Roman Catholics and it would have been wiser if they had not left the church at all. The positivistic orthodoxy culminates in the positivistic mystery of Comte's idea of a "Virgin-Mother" (*Vierge-Mère*) which according to Lafitte is destined to elevate the intercourse between the sexes, while Audiffrent, Lagarrigue, and the Brasilian Lemos stick closely to Comte's view "to represent positivism as directly conceived

under the Utopia of a virgin-mother."* General Lemos goes so far as to say "We prefer to be looked upon with St. Paul for the sake of our faithfulness toward Comte as fools than to be praised by the contemporary frivolity as sages." And Audiffrent defends against Lafitte the diplomatic action of Comte's with the General of the Jesuits concerning an alliance between Positivism and Catholicism. Positivism, he says, invites all who have ceased to believe in God to become positivists, but it induces all those who still believe in God to turn Catholics, thus making an alliance possible of the disciplined against the non-disciplined.

If the Jesuit General ever has seriously considered the offer, he would perhaps have accepted it, for there is no doubt that he would have made the better bargain as all the discipline we should say is on his side.

The English group of Comtean Positivists consists mainly of Fr. Harrison, Richard Congreve, George Eliot and James Cotter Morison. The second part of the book which treats of the positivistic movement outside of the positivistic schools in England, France, Germany and other countries will be less interesting to English and American readers partly because the subject is better known to them partly because our author is apparently more familiar with his French than with his English sources. The second part begins with John Stuart Mill and Herbert Spencer. It mentions Bain, Lewes, Clifford, Maudsley, Darwin, Sully, Romanes, Huxley, Tyndall. Clifford's view is sketched in sixteen lines but in such a way that it appears grotesque. As French positivists outside the schools are mentioned Taine, Ribot, Fouillée, Guyau, Charles Richet, J. Luys, Cl. Bernard, and Roberty. It is correctly said of Ribot that his doctrine of personality is most characteristic of his views. The unity of a personality in the ego does not grow from above downwards but from below upwards, but Gruber is mistaken in saying of Charles Richet, the editor of the *Revue Scientifique*, that he represents about the same views as Th. Ribot. Richet's publication on telepathic experiments in which he confidently believes, would never be countenanced by Ribot.

As the first German positivist is mentioned Eugen Dühring. Riehl, Laas, Lange, Vaihinger and Avenarius are disposed of together in the next following chapter. Several pages are devoted to Wundt.

The little chapter headed *Nord-America* (p. 171) consisting of two and a half pages begins with the words: "According to the testimony of G. Stanley Hall philosophy in the new world is in its swaddling-clothes still (*in den Kinderschuhen*). Philosophers over there are as rare as snakes in Ireland (*Schlangen in Norwegen*).† For scientific instruction in the United States are used as guiding stars Spencer,

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*. . . "A représénter le positivisme comme directement résummé par l'utopie de la Vierge-Mère"—Comte to Audiffrent, the 8th of St. Paul 69 (May 28, 1857.)

† Good philosophers, it is true, are rare in America, perhaps rarer than in Europe. Nevertheless the interest in philosophy is exceedingly strong here. There are metaphysical and philosophical clubs all over the country, and the crop of philosophical dilettanti is at least as great on this side of the Atlantic as in Paris.

Lewes, Darwin, Huxley, and Haeckel." As a representative Atheist is named Ludeking, a man unknown to fame, while Colonel Ingersoll is not mentioned at all. It is maintained that J. D. Bell, a professor in New York had proclaimed the same confession of faith as Comte in *The Modern Thinker*—a journal which we have never seen nor ever heard of. The societies for ethical culture are characterised as avowing "a purely natural religion" while in fact natural religion, the religion of science and philosophy, as a basis of ethics is as rigorously rejected by Professor Adler as any dogmatic religion, and more than half of the two and a half pages is filled with a masonic proclamation of the Sovereign Grand Commander, Albert Pike, of Washington, which preaches the belief in an unknowable God and denounces Atheism.

The booklet closes with the following sentences: "The full and true positivism is embodied in the Catholic Church. The divine revelation which she represents is that which is truly real . . . truly sure . . . truly precise . . . truly organic . . . truly useful. The deepest root, however, and the most essential nature of all true positivism (this is vouched for by reason as well as by revelation) is not the relative but the absolute."

Here we conclude our review of the book. We have however to add a few words which concern *The Monist* as well as all the publications of The Open Court Publishing Co. Hermann Gruber mentions in his book *The Open Court* and its editor together with the societies for ethical culture. We have, ourselves, characterised our views as positivism and as monism, but we stated at the same time that our positivism had nothing to do with Comte or with any one of Comte's disciples.* They have (with the sole exception of Ribot and I should hesitate to call him a Comtean) contributed little if anything to the formation of our views. The name Positivism is a good and expressive word and we have adopted it because taken in its proper meaning it represents the true principle of modern philosophy. However we cannot agree with any of the fundamental tenets either of Comte or of his most positivistic and most scientific disciple Littré.† Comte as well as Littré are radical agnostics they repeat again and again that "We can know nothing about first and final causes. Positive philosophy denies nothing and maintains nothing." According to our view of the subject this attitude is rather negativism than positiv-

* It is a matter of course that we are in strong sympathy with many philosophers and scientists whom Hermann Gruber classes among the positivists outside of the positivistic schools, not only Th. Ribot, but also Guyau, Fouillée, Roberty, and others. How much they were influenced by the Comte-Littré or the Comte-Lafitte Positivism is difficult to say. It is certain that many of them would have accomplished the same work in the same way with or without Comte. Roberty was first a fervid disciple of Comte, but he soon combated not only Comte's law of the three stages (which latter by the bye was according to Schaarschmidt first pronounced by Turgot) but also his agnosticism, declaring that Comte was still entangled in metaphysicism, and that the last bulwark, the idea of the unknowable, had to be conquered also.

† We publish in this number a sonnet by Louis Belrose, Jr. to Emile Littré. Mr. Belrose is a positivist who attended together with Mr. Fred. Harrison positivistic lectures in France. We publish Mr. Belrose's poem as an expression of his gratitude and admiration toward a master mind but not as an expression of our view of Littré.

ism. But it is not even negativism; it is worse, it is mere scepticism leading to indifferentism. It sounds very philosophical to speak of the inscrutability of first and final causes but the very terms "first causes" and "final causes" are most nonsensical and self-contradictory concepts. (See "Fundamental Problems," pp. 88–90, and 101.) Comte and Littré imagine to have conquered metaphysics, but in fact they are the worst kind of metaphysicians. They believe in the ghosts of metaphysics as strongly as some mediæval minds believe in devils but are afraid to wrestle with them, because, as they maintain these metaphysical ghosts cannot be conquered.

Comtean Positivism, especially as it is represented by Littré, consists mainly if not exclusively of the doctrine to "let metaphysics alone" (which latter includes the object of religious worship) and limits science to positive issues. Thus the oneness of the sciences, a unitary world-conception is lost, for the hierarchy of the sciences which are to serve as a substitute for philosophy is rather a summing up of the stock of knowledge than a system of the sciences exhibiting their organic growth. It is an inventory rather than a plan to guide science in its further evolution. It is an anatomy rather than a physiology, for the very life and spirit of the sciences is missing. And outside the pale of the hierarchy of the sciences there is looming around an awful something quite different in its nature, like an infinite ocean surrounding a forlorn island, the unknowable first and final causes! That which is called by former philosophers "metaphysics," which is at the same time the essence of religion, is by no means either unknowable or indifferent. It is not something beyond, something extramundane, it is the very life of the world and our religious and philosophical opinions are not only of a theoretical interest. They are the main factors of our lives which in the long run will determine the direction of our development. That this is so, has not been sufficiently recognised, and we would suggest in this connection that a history of the United States should be written to point out that the political liberty of the country and its republicanism are nothing but the application of its religious principles and of the Puritan conviction of religious independence. The historic growth of the colonies remained faithful to this maxim. The religion of a man and of a nation is the most important thing. In the same way the structure of a seed predetermines the whole plant, and the angle of crystallisation together with the shape of the crystal-nucleus from which the process of crystallisation starts, will determine the formation of the whole crystal.

His sceptical attitude led Littré to what he and his friends call "tolerance." Littré's wife was a devout Catholic and his daughter was educated in her mother's faith. He had intended to explain to her his views of the subject when she had reached maturity, and leave the choice to her. But when the moment came, he declared that "the experiment was not worth the tears which it would cause." Our view of "tolerance" is radically different. Whatever the truth may be it should be struggled for, cost it ever so many tears or pains.

We cannot sympathise with Littré's method of constructing ethics upon the nutritive and sexual instincts, the former producing egotism, the latter altruism. Emotions are, says Littré, as much as ideas, the result of brain-processes in consequence of external impressions and "the struggle between both kinds of emotion make up the moral life." Littré rejects the evolution theory and its attempts to explain ethics. (See Gruber's book p. 20.) Having explained our views of ethics on other occasions, it is sufficient here to state that we consider Littré's attempt as a failure. We cannot even adopt the so-called "positive method," of which Littré says: "Whoever adopts this method is a positivist and whether he acknowledges the fact or not, also a disciple of Comte. Whoever employs another method is a metaphysician. It is the surest mark by which a careful mind will discriminate what belongs to the positive philosophy and what is foreign to it." What is this method? Says Littré: "It is an acknowledged principle of positive science that nothing real can be stated through reasoning (*raisonnement*). The world cannot be guessed." Littré is opposed to so-called *a priori* arguments. Hermann Gruber says in the preface: "This positive method is embraced by all the representatives of the lines of thought here discussed. All of them intend to build up their systems with the exclusion of scholastic, respectively of Kantian, Hegelian, or any *a priori* speculations after purely 'scientific' methods upon the foundation of the facts of experience." We certainly intend to build our world conception "upon the facts of experience" but the most important facts among them are their formal relations and these formal relations when represented in thought are exactly that element which Kant called *a priori*. The sense-element affords us the building stones, but the *a priori* element represents the mortar without which we could not build. So much do we oppose this one-sided philosophy which takes its stand upon what is wrongly called the purely scientific method, that our views have been called the Philosophy of Form, and justly, for Form is that feature of the world which makes of it a cosmos and formal thought is the organ of our comprehension. κρς.

Ueber den associativen Verlauf der Vorstellungen. Inaugural-Dissertation. By *E. W. Scripture*, M. A., Fellow of Clark University. Leipzig: Wilhelm Engelmann. 1891.

This essay of 102 pages characterises most excellently some of the proceedings and methods of Professor Wundt's psychological laboratory. The author, a disciple of Wundt, is a native American who studied in Berlin, Zürich, and Leipzig, and took his degree of Doctor on the ground of this dissertation. The object of the treatise is not so much to solve as to formulate the problem of the associative course of concepts, and the author hopes that in a future treatise he will be able to propound his theory based upon the facts here related.

The experiments were made with the assistance of seven friends, among them German students, a doctor of philosophy, a doctor of medicine, and a teacher. They were of different nationality, three Germans, one Belgian, one Japanese, one

Englishman from the Cape, and two Americans, the author included. The apparatus used was so arranged that the person operated upon sat in the dark, before him was a plate of ground glass intercepting from a camera an image which was exposed for four seconds. Pictures of all kinds, colors, and plainly printed words were used. For other sense-impressions the observer was also seated in the dark. Several instruments for producing sounds were ready on a table. Tastes were effected by liquids which the person operated upon had to drink, and the sense of touch was investigated through handing him cards to which some small objects had been attached. The author was partly operator, partly observer, i. e. the person operated upon. The ideas evoked through the sense-impressions produced in this way, are enumerated in tabular form in the order in which they arose.

Among the experiments made in this way we find one kind which is of special interest. Sir William Hamilton made the remark in his Lectures on Metaphysics that unconscious ideas may serve as connecting links between two ideas otherwise unassociated. He represented his view in the following way: Let *A*, *B*, *C*, be three ideas, *A* does not suggest *C*, but both are associated with *B*. It happens that *A* is directly followed by *C* in consciousness. In such a case *A* may recall *B* and *B* may recall *C*, but *B* being a *minimum visibile* or *minimum audibile* does not enter consciousness. Thus the idea of the mount Ben Lomond called into Hamilton's mind the system of Prussian education.' Subsequent reflection taught him that he had met on Ben Lomond a German. The recollection of the place was associated with the ideas—a German, Germany, Prussia. These ideas were too weak to enter consciousness yet they reawakened another idea which did enter consciousness, the system of Prussian education.

This is a mere suggestion of Hamilton's but Dr. Scripture proved its truth by actual experiment. He took cards containing some simple words, such as MENSCH, GEHEN, KOMMEN, BLUME, etc., and also Japanese words in Roman characters HANA, HITO, IUKU, KURU. To every word was attached another Japanese word in Japanese characters so that the same character appeared on HANA, and BLUME; HITO and MENSCH; JUKU and GEHEN; KURU and KOMMEN. The words were shown twice so as to give a stronger impression. The Japanese gentleman was excluded from these experiments, and indeed, the unknown Japanese characters which were only dimly or not at all remembered, evoked the corresponding words: HITO—MENSCH; KURU—KOMMEN; BLUME—HANA, etc. Dr. Scripture adds: "These associations were involuntary, the observer imagined them to be wrong, and could find no reason for the involuntary appearance of the words. He had not thought at all of the connecting links."

It appears that the links in a chain of concepts need not be all conscious and the result of his experiments in this line is formulated by Dr. Scripture as follows: A concept apperceived can bring another concept into the focus of consciousness although it was never associated with it, if there are other psychic elements of lower degrees or even outside of consciousness which are connected with both—provided

that there are no other elements stronger than these. The effect of the unconscious link however is much weaker than that which was conscious.

Pages 71–101 are devoted to the investigations of the after-effect of concepts. The phenomena of ideation being extremely complex, we cannot assume that the process of a so-called reproduced concept is analogous to the original idea. A sensation changes during its presence with reference to the degree of consciousness of its parts and even the concepts as a whole may be altered. The process is different according to circumstances. The renewed concepts differ from their originals, (1) in the degree of the consciousness of the whole idea, (2) in the degree of the consciousness of its parts among themselves, (3) in form, color, relations, etc., (4) in duration. In order to avoid the metaphysical influence of hypothetical theories we ought to avoid all kinds of terms suggestive of a theory and stick closely to a simple description of facts. Therefore Dr. Scripture proposes to discard such words as "retention, reproduction, revival," etc., and suggests the term "after-effect." Yet he adds, quoting from Wundt, "these after-effects themselves are as little ideas as the effects produced upon nerves and muscles by exercise can be called actions of will."

Dr. Scripture avoids explaining what he conceives these after-effects to be. We see no reason for disagreement and should say that the result of the after-effects is what generally goes by the name of "disposition." And a certain disposition is produced according to the law of the conservation of form in living structures. (See "The Soul of Man," pp. 418–424.)

Dr. Scripture is led by a consideration of his observations to the following statement: "Each concept is conditioned through the effects of the elements of the present state of consciousness and the after-effects of many (if not of all) previous elements of consciousness."

This result is not compatible with the theory of reproduction now almost universally accepted by the association-psychology. Wundt says: "If only certain single concepts were renewed, we might perhaps explain why in the memory-picture certain elements of a former reproduction are missing: but we could not explain why the elements of a concept change so often qualitatively as is indeed the case. This, it appears, is possible only because a memory-picture and others of a kindred nature affect each other mutually."

This will find explanation in the following experiment. The observer sees a dog, and thinks of a circus, which he saw a year ago. There is no direct association between the picture of the dog and the special reminiscence of that circus visited a year ago. The association was formed at the moment. Former sensations of dogs had their after-effects and this special reminiscence was localised.

Dr. Scripture maintains that Höffding's association theory contains too many hypothetical elements; it presupposes faculties of the soul to join like with like and to combine simultaneous or consecutive events. *κρς.*

PERIODICALS.

MIND. July, 1891. No. LXIII.

CONTENTS:

The Problem of Psychology. By *E. W. Scripture.*

The Physical Basis of Pleasure and Pain. I. By *H. R. Marshall.*

Schopenhauer's Criticism of Kant. By *W. Caldwell.*

Discussion: On the Origin of Music. (1) By *R. Wallaschek;* (2) By Prof. *J. McK. Cattell;* The Coefficient of External Reality. By Prof. *J. Mark Baldwin.*

Critical Notices: James's "The Principles of Psychology"; Pfleiderer's "Development of Theology in Germany;" Keynes's "Scope and Method of Political Economy"; Lehmann's "Die Hypnose und die damit verwandten normalen Zustände."

As all sciences treat, to a great extent, of the same objects, they can be separated only according to *how* they treat things. On this principle, Mr. Scripture divides sciences into Special Sciences, General or Philosophical Sciences, and Didactic Sciences. The Special sciences are, I, the Mathematical Sciences, treating the *forms* of all experience; II, the Phenomenal Sciences, treating of the *contents* of all experience; the second class is divided into the Physical Sciences, which treat experience from its objective side, and Mental Sciences, which treat experience from its subjective side. The group of Mental Sciences is best divided, according to Wundt's scheme, into the sciences of mental processes, Psychological Sciences; the sciences of mental products, Philological Sciences; and the sciences of mental development, Historical Sciences. Psychology as a science of mental phenomena has a two-fold relation to the physical sciences: it is complementary to them, a necessary auxiliary; they are complementary to it, accessories in psychological investigation. States of mind always remain states of mind; they cannot be resolved into motions of particles of matter, and it is a fundamental axiom that *mental phenomena cannot influence or be influenced by material phenomena.* But we are justified in talking about a nervous stimulation becoming a percept, a muscular contraction following an act of will, as long as we remember that these are only substitutes for unknown quantities. Physiology investigates nervous changes; Psychology, mental changes; Physiological Psychology, the relations between the two. Mental phenomena are of two kinds, mental processes and mental products. Psychology is the science of mental processes; it seeks the exact description and explanation of the operations of our inner experience. The relation of Psychology to Philosophy

is a burning question. Metaphysics, or Philosophy in the narrower sense, seeks from the agreement of the results of all other sciences to establish a system of the principles that underlie all existence, i. e. a theory of the universe, material and mental. After the general principles have been determined by metaphysics, philosophy has the duty of correcting the special sciences when they set up one-sided hypotheses, and of helping where they are unable to proceed alone. Psychology is considered a part of philosophy, but as a special science, treating mental processes from its own standpoint, it is distinct from psychology as a general science treating mind, relations of mind and matter, etc., from the standpoint of philosophy. The latter should be termed Philosophical Psychology. The relation of Psychology to Logic depends on what the latter is. Logic is a science of thought, but thought is also a subject of psychology. Psychology treats thoughts as we think them; Logic, as we ought to think them. Each of the sciences, Epistemology, the doctrine of knowledge, and Methodology, the doctrine of methods, treats of thought for its own distinct purpose. The former determines what the truth is; the latter determines how we ought to think. The didactic sciences are of two kinds: the sciences of the general principles or ends to be obtained, and the sciences of the means to attain these ends. Among the former is General Pedagogy, which determines the ends to be sought for in education. Psychology furnishes the foundation of fact; the science of general pedagogy judges which of these facts are desirable, in much the same way as epistemology judges which are true.

In a former article (*Mind* No. 56) Mr. Marshall showed that Pleasure and Pain are primitive qualities which, under proper conditions, *may* appear with any psychosis, whatever be its content. He now finds that all the most notable pleasure-pain theories may in the first instance be placed in four groups, determined by the emphasis of certain kinds of pleasure or pain. An examination of pleasure-pain theories shows, *first* that there is a general agreement, with but few dissenting voices, that all pleasure is at bottom the same thing, and that all pain in its essence is a single psychological phenomenon, and further that pleasures and pains are unifiable; *second*, that there are certain facts so marked in experience as to have become the basis of the majority of pleasure-pain theories. Mr. Marshall proceeds to consider the theory that "the activity of the organ of any content if efficient is pleasurable, if inefficient is painful." He concludes that pleasures and pains are involved with the nutritive conditions of the active organ, and lays down the principle that "all pleasure-pain phenomena are determined by the action in the organs concomitant of the conscious state, as related to the nutritive conditions of the organs at the time of the action." The difference between the hypernormality of pain and of pleasure, turns upon the fact that pleasure is obtained where the organ has been *rested*. Rest in an organ which is sometimes active means storage of energy derived from blood supply; and action after rest means the use of stored energy. But as action of an organ after rest gives a psychic content which is pleasurable, we have the working hypothesis: "Pleasure is experienced wherever the physical action which determines the content involves the use of stored force—the resolution of potential into actual energy; or, in other words, whenever the energy involved in the reaction to a stimulus is greater in amount than the energy of the stimulus." By a similar process of reasoning we obtain the hypothesis: "Pain is experienced whenever the physical action which determines the content is so related to the supply of nutriment that the energy involved in the reaction to the stimulus is less in amount than the energy of the stimulus." We may also say in general, "Pleasure and pain are primitive qualities of psychic

states which are determined by the relation between activity and capacity in the organs, the activities of which are concomitants of the psychosis." Mr. Marshall then supplies the psychological interpretation of the physiological phenomena attendant on the pleasures of Rest and of Relief, and of the pain of Obstruction or hindered activity. He concludes the present article with the statement that the physical concomitants of pleasure-pain phenomena are to be found in general qualities common to all processes which are at the basis of our conscious life; and that this is corroborated by introspective analysis of pleasures and pains. Mr. Marshall's idea does not appear to us as a happy solution of the problem.

The object of Mr. Caldwell's paper is to explain Kantism through Schopenhauer, who claimed to be Kant's only true successor in philosophy. Schopenhauer came to the conclusion that Kant's only real discovery, given in the "Æsthetic," was that Space and Time were known by us *a priori*. The principle of Causality is the only element of value he finds in the "Analytic," and a much simpler account could have been given of it. The "Dialectic" represents the Negative side of the Critical Philosophy, which although conclusive, might have been stated more simply. In Ethics Kant rendered the immortal service of showing, by his attribution of a noumenal freedom to man, compensating for his phenomenal necessary determination, "that the kingdom of virtue is not of this world"; although the *K. d. prakt. V.* is only an application to ethics of the principles already reached in the sphere of the Pure Reason. Schopenhauer finds the *K. d. Urtheilskraft* to contain the characteristic defect of Kant's whole Philosophy—the starting from indirect instead of direct knowledge. Lastly, the criticism of the Teleological Judgment only shows what the *K. d. r. V.* already showed, the subjectivity of what we may call the ontological categories. According to Schopenhauer, the chief tendency of the Kantian philosophy is to establish "the total diversity of the real and the ideal." The Ideal he explains as "the visible, spatial appearance with the qualities that are perceived on it," and the Real as the "thing-in-and-for-itself," which is the reality underlying and determining the world of experience, and, as such, a real and not a hypothetical entity. Schopenhauer never speaks of it in the plural, as Kant does, and so keeps consistently to a monistic point of view. He says, "The way in which Kant introduced such a thing-in-itself and sought to reconcile it with his philosophy was faulty." This concerns Kant's method, against which Schopenhauer directs the full force of his criticism. The fundamental principle of Kant's method Schopenhauer takes to be the starting from indirect reflective knowledge: Philosophy is for Kant a science of conceptions, while for himself it is a science *in* conceptions; philosophy being a conceptualised or *generalised* statement of our knowledge. Schopenhauer sees all Kant's errors contained in the following sentence from the *K. d. r. V.*: "If I take away all thought" (through the categories), "from empirical knowledge, there remains absolutely no knowledge of an object, for through mere perceptions nothing at all is thought." In endeavoring to construct a philosophy out of pure conceptions Kant failed to solve the problem, in having the thing-in-itself left on his hands. This proved to Schopenhauer that the path of abstract reflection was closed as the path of philosophy. Mr. Caldwell demurs to Schopenhauer's statement that the "Æsthetic" is Kant's only discovery, yet as the "Æsthetic" shows the tendency to conceptual abstraction, his view of Space and Time is of extreme importance. It is of the "Logic" of the *K. d. r. V.* that Schopenhauer's criticism is materially and formally most radical. He gives a different account of the functions of the Soul, rejecting altogether the faculty-distinctions of Kant: he associates Kant's faculty of

Understanding more with Sense and the category of Cause with the spatio-temporal or perceptual construction of the world, and holds the other eleven categories to be mere blind windows put into a scheme through Kant's love of symmetry; and, secondly, he holds Kant's account of Reason to be utterly false, and substitutes his own doctrine of the thing-in-itself for Kant's three Ideas of Reason. By Reason Schopenhauer means the power the mind has of forming general conceptions and of knowing by way of conception or idea, the matter for conceptions and ideas being of course derived from Perception. Reasoned knowledge is an abstraction from perceived knowledge, and all knowledge, as Schopenhauer says, is originally and in itself perceptive. The confusion in Kant's account of the elements entering into knowledge, is Schopenhauer's reason for holding that Kant can only have had the fundamental principle of his method imperfectly present to his mind. His whole difficulty in relating the elements of knowledge to each other arose from the fact that he in his thought likened the categories to conceptions through want of an explicit and persistent recognition of the nature of conception. Schopenhauer himself classifies the categories according to the planes or stages of experience they characterise: the perceptual, the mathematical, the logical, and the ethical in order. The categories are all abstractions, but not conceptions or notions. Conceptions are a particular kind of abstractions, and so are categories: to conceptions *material* entities correspond, but to categories only relations or forms. Knowledge consists in the detection of relations existing between the different planes or sections of the perceptual continuum, the difference in perceived things being that some are immediately and others only mediately perceived. The true reason of Schopenhauer's revolt from the method of conceptions is to be found in the difficulties in which he felt himself involved by the theory of Subjective Idealism. Philosophy, he says, is a search for the Thing-in-itself, but he tells Kant that from the idea nothing but the idea follows, and that the path of Reflexion or Knowledge is closed as the path of philosophy. Had Schopenhauer kept more true to his ruling that knowledge is originally and in itself perception, he would not have maintained that the world is my idea. The Thing-in-itself is the shadow cast by the Reflective or Abstracting Understanding. With both Kant and Schopenhauer it is primarily invented to get rid of the difficulty bred of a belief in an abstraction or unreality, and as it is a pure mental fiction, we may safely deny that there is any such thing in reality.

Mr. Wallaschek finds the origin of music in a rhythmical impulse in man. The sense of rhythm arises from the general appetite for exercise, which recurs in rhythmical form owing to sociological as well as psychological conditions. On the one hand, there is the social character of primitive music, compelling a number of performers to act in concert. On the other hand, our perception of time-relations involves a process of intellection, by means of which the mind is able to comprehend them as a whole. Since music is produced not merely as an auditory impression and expression, but also in order to evoke reflexion, it must contain the qualities of time-order and rhythm. Mr. Herbert Spencer's theory of the origin of the general appetite for exercise is said to afford the most valid explanation. It is the surplus vigor in more highly evolved organisms, exceeding what is required for immediate needs, in which play of all kinds takes its rise. We owe our musical faculty to the time-sense rather than to our sense of hearing. The perception of particular tones and tunes plays a very low part, if any, in primitive music. In almost all the examples furnished by ethnology, we see that music is the expression of emotion, which is also one of the sources of human language. Mr. Spencer is said to be wrong, however, in thinking that musical modulation originates in the modulations of speech

Music and speech have a reciprocal influence, and primitive human utterance, using sound-metaphors and onomatopœia, may resemble primitive musical tones. Nevertheless, an early separation of distinct tones and indistinct sounds seems to have taken place, not as a transition from the one as prior to the other as succeeding, but as a divergence from a primitive state which is, strictly speaking, neither of the two.

Professor Cattell objects that the theories of Darwin and Spencer on the origin of music, describe what probably took place, rather than explain why it was necessary that it should have taken place. As to Spencer's explanation of harmony, he affirms that it amounts to saying that harmony gives pleasure because it is pleasant. After referring to the connection of harmony with the existence of overtones, Prof. Cattell states that music is not, as commonly supposed, a creation of the imagination, freer than the other arts from a physical basis, but is rather a discovery and a development. All the combinations of music are latent in the sounds of nature, and the history of music bears witness to the gradual adoption of such as are more remote. The difference in voices rests on the overtones present, and the immense emotional effects of music are due to the fact that music expresses the emotion of the human voice, using and developing those combinations of tones which the voice uses when moved by sorrow and joy, despair and exultation.

By the *Coefficient* of External Reality, Professor Baldwin means the something which attaches to some presentations in virtue of which we attribute reality to them; while others, not having the coefficient, are discredited. Diametrically opposed solutions of this question are held. To one class of writers, the coefficient of the reality of an image is its independence of the will; to another class, the coefficient is subjection to the will. If we make a distinction between a memory-coefficient of reality—that is, the something about a memory which leads us to believe it represents a real experience—and a sensational coefficient, that is, the criterion of present sensational reality, we see that those two kinds of reality differ in their relation to the will. A present sensible reality is not under the control of any will, but a memory coefficient is subjected to will, in the sense that we are able to get the image again as a sensation by repeating the series of voluntary muscular sensations which were associated with it in its first experience. This memory-coefficient of external reality must be distinguished from the coefficient of memory itself; the latter being the feeling that an image has been in consciousness before, i. e. recognition, or sense of familiarity. A true memory is an image which I can get at will by a train of memory-associates, and which, when got, is further subject to my will. (London: Williams & Norgate.)

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CONTENTS:

The Modern Conception of the Science of Religion. By Prof. *Edward Caird.*

The Functions of Ethical Theory. By Prof. *James H. Hyslop.*

The Morality of Nations. By Prof. *W. R. Sorley.*

J. S. Mill's Science of Ethology. By *James Ward.*

Vice and Immorality. By *R. W. Black.*

The Progress of Political Economy since Adam Smith. By *Francis W. Newman.*

PROGRAMME OF SCHOOL OF APPLIED ETHICS.

DISCUSSIONS: The Moral Aspect of "Tips" and "Gratuities." By *Christine Ladd Franklin.*

Ideas and facts, says Professor Caird, are continually being woven together as warp and woof, into the web of man's intellectual life. The idea of the unity of mankind has within the last century become an almost instinctive presupposition of all civilised men. It has special application to the history of religion. In a man's religion we have expressed his ultimate attitude to the universe. Even atheism or agnosticism involves a definite attitude towards the ultimate problem of human life. The modern ideas of the organic unity and the organic evolution of man inevitably compel us to seek for the one principle of life which is striving towards the full realisation of itself.

Professor Hyslop remarks, that two questions may be asked: (1) Why is it that any disturbance in ethical speculation at once brings men up in arms about the consequences? (2) Why is there such a tendency even in speculative ethics to bring its theories into harmony and sympathy with "practical" problems? The preliminary answer is the distinction between science and art. The aim of science is to find causes; the aim of art to produce ends by means of these causes. But art may be divided into productive and practical art. Every consideration of the scope and aim of ethics shows it to be both a science and an art. As a science it endeavors to explain something; as an art, to realise something. Its complications are thus twofold. Ethics may be a science in two distinct relations. First, it aims to show the general conception which will reduce the various motives actually governing human conduct to unity. Secondly, it aims to show the end that ought ideally to govern conduct, and this is the supreme object of ethics as a science.

In relation to the Morality of Nations, Professor Sorley says that the relations of the state, diplomatic or military, with other states may be compared with the relations of one individual to another, but the two sets of relations are not the same. A crime is an act punishable by law, and it is absurd therefore to speak as if the state, acting legally, could commit a crime. But if theft ceased to be a crime it would be as much an offense against morality as before. Taxation to which the taxed have not consented and unfair taxation cannot be regarded as theft, as some suppose. Individual morality becomes mixed with national morality when those through whom the state acts act for themselves and for their own interests, instead of for the common good. Within a nation the state is above all individuals, but there is no corresponding superior power over nations. What remains is a general obligation upon states to observe justice in their dealings with one another. National morality differs from individual morality in that a nation's first duty may be said to be to itself. There is no selfishness, there is only patriotism, in its recognising the fact and acting upon it. The intercourse of nations can only reach a full measure of development under a common moral law, which recognises the rights of one nation as of equal value with the rights of any other.

Mr. Ward points out, that Mill, in his exposition of what he called Ethology, or the Exact Science of Human Nature, repeated in all the issues of his "Logic," remarks that Ethology must first proceed deductively. The laws of the formation of character "are derivative laws, resulting from the general laws of mind, and are to be obtained by deducing them from those general laws." There was a want of clearness in Mill's conception of an individual. The notion of a Self proved, on his own admission, "the real stumbling block" to his psychological theory. In discussing the influence of remarkable men, Mill allows that "whatever depends

on the peculiarities of individuals, combined with the accidents of the positions they hold, is necessarily incapable of being foreseen." When we attempt to estimate the influence of circumstances on individuals, we must often know how the circumstances appear to *them*,—this personal equation so to say is frequently incalculable.

In the main, says Mr. Black, sin exists intimately in, or as an inseparable affection or potentiality of, the person as a whole, and to discourage it is to discourage the person, and tantamount, therefore, to discouraging his goodness as well. At this point the division of sin into vice and immorality becomes essential to a rational solution. Immorality is crime against living moral agents. Vice may be defined as the spending of the forces of one's own life to the detriment of its moral capabilities.

Mr. Francis W. Newman, who began the study of Political Economy seventy years ago, when he was sixteen, gives in this article his views on the evils of land tenure in England.

Mrs. Franklin thinks "the subjective feeling of worth and dignity" which distinguishes the people of this country will be injured by "giving fees to our inferiors when they perform some service for which they are (or ought to be) otherwise well paid." That the matter is not "absolute ethics" is apparent from the fact that in Japan a totally different sentiment prevails. The editor, Prof. Josiah Royce (under the signature of J. R.) in commenting on Mrs. Franklin's communication, after referring to the evils of the German custom of Trinkgeld as detailed by v. Ihering, says that if it harms the manhood of our writers to "tip" them the mischief should be met by organised devices such as v. Ihering proposes, and not by individual action. (Philadelphia: *International Journal of Ethics*, 1602 Chestnut Street.) Ω.

REVUE PHILOSOPHIQUE.

CONTENTS: June, 1891. No. 186.

Les Resultats des Theories Contemporaines sur l'Association des Idees. By *B. Bourdon*.

Comment la Sensation devient Idee. By *J. Payot*.

Notes et Discussions. Qu'est-ce que la Physiologie Generale? By *Durand (de Gros)*.

CONTENTS: July, 1891. No. 187.

La Notion de Limite en Mathematiques. By *G. Milhaud*.

Coup d'oeil sur l'Histoire de la Philosophie en Russie (I). By *F. Lannes*.

Les Sources de la Philosophie de l'Inde. By *P. Regnaud*.

M. Bourdon reviews the modes of association proposed by various psychologists, and the factors which intervene to give force to associations. Wundt alone among psychologists has the great merit of not placing ideas and sensations in actual opposition. The laws of ideology are almost the same as those of physics; and the law of association ought to be true not only for ideas, but for sensations and for objects. M. Bourdon's conclusion is that the theory of the association of ideas has hitherto been treated from a too subjective and idealistic point of view. He would substitute for the theory of *association* of idea a theory of a *society* of phenomena, which conception he thinks better explains the process.

In a preceding contribution to the *Revue Philosophique* (May, 1890) M. Payot showed that sensation is the translation into terms of consciousness of that which,

considered from the objective point of view, is a reaction of the organism, as a whole, to an external impression. Sensations are the irreducible element of the psychic life. They contribute the materials which the mind modifies, combines, and classes according to their relations, variable or invariable. This is chronologically posterior to sensation, which has an affective origin. The reactions corresponding to the most frequent sensations become more and more rapid until consciousness, "which translates only physiological states of a sufficient duration," has not time to appear. Here we have a reflex-act. In an intermediate zone where reactions take a time sufficient for them to be conscious, the intellectual states, to which the abstract name of the intellectual faculty has been given, have birth. Differentiation operates between sensible and intellectual facts, until they seem to belong to two irreducible faculties; but the intellectual states are grafted on the sensible states, and although the graft develops so greatly that the sensibility appears like a parasite, the latter is the primitive trunk and through it the graft exists by a kind of continued creation. Sensations are convenient abstractions but nothing more. A sensation never presents itself in the adult consciousness without a crowd of instantaneously evoked relations. There is never absolute exclusion between perception and sensation: these are two states which dissolve into each other, which have no difference in nature, and which are separable only in gross. Properly speaking there are no sensations, only perceptions more or less complex. In sensation the state of mind is considered in itself without reference to its relations; in perception attention is paid chiefly to the relations. But sensation exists only for consciousness, as it can never enter directly into intellectual constructions, but only through the state of remembrance. Every sensation so far as we are sensible of it is purely felt, and we effectuate our mental constructions not with sensations, but with our remembrances of sensations. But the role of sensation is still more restricted. However rapid its flight across consciousness it instantaneously provokes the remembrance of numerous sensations of differences and resemblances with anterior sensations. It is an occasion for this, and nothing more. To be perceived, a sensation must be followed by sensations different from itself. The mind seizes relations of resemblance between sensations and resemblances between relations: it classes them, the chaos unravels and organises itself. The organisation has been progressive, but at all stages the procedure is alike; it consists in disengaging remembrances more or less masked by dissimilarities: this is the universal procedure of the mind and the condition *sine qua non* of thought.

In his article on *General Physiology*, M. Durand (de Gros) in criticism of M. Ch. Richet's article on this subject which appeared in the April number of the *Revue Philosophique*, points out that Richet in applying the term "general anatomy" to the anatomy of the tissues, and "special anatomy" to the anatomy of the organs, overlooked the fact that *generality* and *speciality* when used to express the two opposite sides of a science express relations of abstract, nominal extension and not real extension. Thus, by general chemistry is intended the consideration of the higher laws governing the molecular actions of bodies, the one on the other, whatever that may be, and the modes of composition which result therefrom for each of them. General physiology should be, therefore, the philosophy of the science of the functions of life, that is to say, the higher laws embracing all these various particular functions; special physiology having for its object these particular functions in what is proper to each of them and distinguishes it from the others. Physiology has reference, however, to the other animals as well as man, and also to plants, and hence the term general physiology has been applied to the physiology common to

all living beings, and special physiology to that which concerns the various animal and vegetal species taken separately. But this is in reality comparative physiology, and thus positive physiologists have made a false use of the term general physiology, and have left the true general physiology unrecognised and unnamed. In conclusion, M. Durand presents his conception of "organology."

In the form of a dialogue M. Milhaud meets the objections made to the notion of limit in Mathematics. The question whether to have a limit, for anything variable, is not synonymous with attaining a limit, is considered in connection with Zeno's problem of Achilles and the tortoise, the strict solution of which is, not that Achilles will never overtake the tortoise, but that he will not overtake it on this side of a spot situated at a distance of $\frac{1}{9}^0$ of a metre from the starting-point, within a period equal to $\frac{1}{9}^0$ of a second commencing at the instant of starting. To the objection that by its very nature the limit cannot be attained, as where the limit and the variable element which indefinitely approaches it are essentially different, it is replied that when a variable element has a limit, this element is a *quantity* and the limit is a quantity of the same kind, quality being neglected. In the proposition: the length of the circumference is the limit of the perimeters of the inscribed polygons, the limit is a quantity of the same kind, that of length. It is not necessary to know whether the definition accords with reality. M. Milhaud then shows by reference to the properties of an unlimited series of inscribed polygons and the corresponding circumscribed polygons, that two such series of geometrical lengths satisfying the required conditions can always be considered as defining a new length, superior to all the first and inferior to all the others. As to its existence, it can be said only that a length exists only as determind, as limited; and a state of length, or a particular length has a right to exist, provided that the properties of quantity which condition it are not contradictory. The essence of mathematical space, breadth, length is only the content of their definitions. Mathematics owes its existence to the condition of creating for itself a world of fictions. There is a divergence of opinion as to whether incommensurables should be represented by lengths or by numerical symbols, but the divergence is a last echo of the endless discussions which the notions of infinity and continuity have raised among mathematicians.

Philosophic thought, says M. Lannes, presents, in Russia, in its past history, a very poor condition. Philosophy does not exist, unless that name be given to such moral precepts, or domestic recommendations as we find in "the instruction" of a Vladimir Monomaque or in the "Domostroï." The Russian mind was easily guarded against the liberties of thought, regarding science and philosophy with contempt and holy dread. There, as during the Middle Ages in the rest of Europe, the end to attain, to which all others were subordinated, was the safety of the soul. It was only with Peter the Great that thought took a freer flight, notwithstanding the restrictions that it had still to support. The Little Russians were the first to turn towards western instruction. In order to meet the Jesuits, who appeared in Russia about the middle of the 16th century, with the arms they used, scholastic philosophy was introduced into the college of Pierre Mohila, at Kief. Aristotle was taken as guide and the teaching was in Latin. Under Alexis Mikhaïlovitch, rational, natural, and moral philosophy began to be taught in a formal manner at the Academy of Moscow. Peter the Great ordered an important place to be given to rhetoric and dialectics, and the mention of logic, psychology, and metaphysics in the programme of the Academy. In 1755 logic, metaphysics, and morality entered into the teaching of philosophy at the University. In the 18th century two currents of ideas manifested themselves, of which some are connected with mysticism, others

with the influence of French philosophy. The former became associated, through Novikof and Schwartz, with free-masonry, which was regarded as a means of acquiring a knowledge of God, of nature, and of man, of becoming a better Christian, a better citizen, and a better family head. Novikof and Schwartz founded the "Society of the Friends of Instruction," and through their zeal a mass of moral and religious books were published for distribution in places of instruction. The influence of the French "philosophers" of the 18th century was preponderant in Russia in the second half of the 18th century. Voltaire enjoyed the greatest favor, and his renown was universal. Freethought penetrated the middle classes, and even conservative and religious men denied miracles in the course of history, considered religion as a political instrument, and attacked the ignorance and cupidity of the clergy. On the happening of the French revolution Catherine was frightened and took rigorous measures against those who wished to use freedom of thought.

Questions of pedagogy held a great place in the thoughts of Catherine. She confided the care of pedagogic reforms to Betski, who showed that true education is that which unites the development of the body, of the mind, and of the heart; but the moral element ought to have the first place. Alexander I. re-established philosophic liberalism and sought to excite interest in social, economic, and political questions. The university of Moscow was reorganised, and one of the faculties included dogmatic and moral theology, theoretical and practical philosophy, natural, political and popular rights. Philosophy also established itself in the new universities of Kharkof, Kazan, and Petersburg. But minds were possessed with more living ideas and various tendencies, political, moral, religious, sceptical, led to the establishment of numerous secret societies whose starting point was the masonic alliance. About 1816, Schröder had introduced into the foreign lodges a spirit of cosmopolitan humanity. Fessler saw in the lodges a means of moral education, the basis of civic education. In order to be received as a mason, it was necessary to pass through certain "consecrations," to obtain certain "degrees of knowledge." Among those "consecrated" by Fessler was Spéranski who, notwithstanding his mysticism, was imbued with the principles of the Revolution. On the reaction under Prince Galitzyn, the minister of public instruction, science was given a mystical end, and religion was declared to be the supreme science. The sciences which could do injury to religion, as geology, were either discarded, or directed to be taught according to the spirit of Holy Scripture. As to philosophy, the teaching of moral philosophy, which does not separate morality from the faith, was alone allowed. The treatises of the Kantian Jacob were forbidden, as containing scandalous theories. In general, in the universities, during the first year of the nineteenth century the objects of philosophic study were somewhat vague. The utility of the sciences, of education, of the individual characters of peoples, enthusiastic discourses on free will, on the rights of reason, on the spirit and forces of nature. Fessler and Vellanski introduced the German philosophy and principally that of Schelling, which became in some sort the lever which put in movement ideas on the independence and the nationality of civilisation. The most ardent champion of Schelling's doctrine was Odoievski, whose external personality marks curiously the idea entertained of philosophy and philosophers between 1820 and 1845. A philosopher was represented as a sort of romantic Faust, leading a kind of life different from common mortals. If he occupied himself with physical sciences, the philosopher was regarded as the equal of a sorcerer with terrible powers. M. Lannes concludes his present article with a sketch of the life and philosophy of Galitch, who on his return to St. Petersburg from a three years tour through

Europe wrote a dissertation on philosophy, in which he explained the development of beings by the double action of *activity* and *passivity*, the one being cause, the other product. In 1819 Galitch taught in the University logic, psychology, and metaphysics, and later he received authority to teach the history of philosophy, to which he gave an *eclectic* character, in accordance with the instructions of his hierarchical superiors. In his *esoteric* teaching he initiated his friends into the philosophy of Schelling. In that year he published a "History of Philosophic Systems," the appearance of which was a rare novelty in the Russian Scientific World. He subsequently published several other works, but the manuscript of one on the "Philosophy of the History of Humanity," which cost him much labor was destroyed by fire. The merit of Galitch is to have wished to establish in Russia philosophy *as science*. He assigned to the study of philosophy the whole encyclopedia of the sciences, but true philosophic knowledge is the knowledge of the unity from which external phenomena flow. M. Lannis gives an analysis of Galitch's "Picture of Man," where, before M. Renouvier, he says of freedom, "it can itself begin an entire series of phenomena, which are then linked together in the relations of dependence, that is to say are the necessary acts of a voluntary principle." Galitch deserves to occupy a small place in the general history of the philosophy of humanity. If there existed before him a science of the relations of the soul and the body, he was at least one of the first to elaborate a programme of what is called to-day *comparative psychology*.

M. Regnaud finds the sources of the philosophy of India in India itself, as they appear in all their simplicity and primitive character in the Rig-Veda, the very ancient collection of liturgical hymns of the Brahmans. The whole doctrine implied by both the Vedic cult and the text of the hymns is resumed in a verse of the Rig Veda. "Each day the same liquid rises and descends; the rains vivify the earth, the fires of the sacrifice vivify the sky." The libations destined to feed the fire of sacrifice and which consisted of inflammable liquids, such as the *ghrita* or clarified butter, were poured out each time that the sacrifice was celebrated into the atmosphere (or the sky) whose life they maintained, in like manner as liquid and solid foods sustain the life of man. The whole religious conception of the Vedic epoch consists then in the idea of an endless *circulus*, of a perpetual exchange of the elements of life, in an immense body which is the universe, whose arterial centre is the sacrifice, and the fire the motor, the distributer, and so to say the brain. (Paris: Félix Alcan.) Ω.

REVUE DE L'HYPNOTISME. April, 1891. No. 10. 5th YEAR.

CONTENTS:

(1) ACCOUCHEMENT DANS L'HYPNOTISME. By *Dr. Fraipont* and *M. J. Delbœuf*. (2) ACCOUCHEMENT PENDANT LE SOMMEIL HYPNOTIQUE. By Dr. *M. G. Kingsbury*. (3) MEMOIRE RELATIF A CERTAINES RADIATIONS PERÇUES PAR LES SENSITIFS. By *Baron de Reichembach*. (4) DISCUSSIONS ET POLEMIQUE: La Nutrition dans l'hypnotisme. By *Gilles de la Tourette* and *H. Cathelineau*. (5) RECUEIL DE FAITS: Contribution à l'application de la thérapeutique suggestive. By *Dr. P. Van Velsen*. Huit observations d'accouchement sans douleur sous l'influence de l'hypnotisme. By *Dr. Marie Dobrovolsky*. REVUE BIBLIOGRAPHIQUE.

Dr. Fraipont terminates his interesting memoir with the remark that save under very exceptional circumstances, as when the subject is very sensitive or has

before suffered a sort of trance, hypnotism can scarcely have any practical importance in accouchment. M. Delbœuf refers in a postscript to the case of a patient described in his writings by the initial J. . . ., and states that her accouchment confirms him in his view of the rôle of the brain, which he regards as a moderating and inhibiting organ, and consequently in the opinion expressed by him in the *Revue Philosophique* as to the essence of freedom, which he regards as having an arresting and not an inciting effect.

MM. de la Fourette and Cathelineau confirm the conclusion drawn from researches made by them for Professor Charcot, that nutrition is affected during the hypnotic sleep, and therefore that hypnotism is a pathological condition. (Paris: 170 Rue Saint-Antoine.)

PHILOSOPHISCHE MONATSHEFTE. Vol. XXVII. Nos. 9 and 10.

CONTENTS:

Goethes Verhaeltniss zu Spinoza und seine philosophische Weltanschauung. By *G. Schneege.* I.

Wilhelm Wundt's "System der Philosophie." By *Johannes Volkelt.* I.

Recensionen: (1) A. Fouillée, L'Avenir de la métaphysique fondée sur l'expérience. By *C. Schaarschmidt.* (2) Th. von Varnbüler, Widerlegung der Kritik der reinen Vernunft. By *E. König.* (3) Bericht über neuere Erscheinungen aus dem Gebiete der Geschichte der Aesthetik. By *E. Kühnemann.* (4) C. Baeumker, Das Problem der Materie in der griechischen Philosophie. By *P. Natorp.*

Litteraturbericht.

Johannes Volkelt continues his review of Wilhelm Wundt's "System of Philosophy." Prof. C. Schaarschmidt criticises Fouillée's view of a future metaphysics as based upon experience, from the Kantian standpoint. Dr. E. König explains with sufficient strength the futility of Varnbüler in his bold attempt of refuting Kant's "Critique of Pure Reason," and Dr. Paul Natorp, the editor, devotes an article to Prof. Clemens Baeumker's book "Das Problem der Materie in der Griechischen Philosophie," in which the author sets forth that the problem of matter is not a limited problem, but the sum total of all those questions which have reference to the existence of some cause of sensory phenomena which in its nature is different from consciousness, The problems of psycho-physics and of the theory of cognition are modern and were unknown to the ancients. Their standpoint remained throughout that of realism. A résumé of the views of Greek philosophers from Thales down to the New Platonists follows.

The leading article is devoted to Goethe's relation to Spinoza and his philosophical world-conception.

Goethe's philosophical and religious opinions are naturally of the greatest interest, because Goethe, the child of nature in the highest sense of the word, represents a genius not such as our great contemporary Cesare Lombroso conceives him to be, i. e. a species of the abnormal man and a kind of insane person, but such as genius is conceived by the layman, i. e. an abnormally normal man, a man whose excellencies lie in a rare harmony of highly developed perfections—not in eccentricities. Goethe's eccentricities were not worse or more extended than those of average people, but he had more sense, more humor, more depth, and more spirit. Well, Goethe as a son of man and as a type of an unusually perfect man was a poet, a

philosopher, a scientist, an historian, an artist, a man of the world, and a man of practical life, all in one, and the opinions of this man in the religio-philosophical field show at least that they accord with man as a child of nature.

Goethe's philosophical views were strongly influenced by Spinoza yet not so as if Spinoza had impressed his view upon Goethe. Goethe happened to read Spinoza's "Ethics" while still immature in mind and felt himself powerfully attracted by the spirit of the book. "What I may have read out of or into that work," he writes, "I could give no account. Yet I found a pacification of my passions. A great and free vista upon the sensual and moral world seemed to open before my eyes. That strange sentence '*He who loves God must not demand of God to love him in return*,' with all its premises and conclusions filled all my thoughts. To be unselfish in everything and most so in love and friendship was my highest delight, my maxim, my practice, so that the bold expression of later years 'If I love thee, it is none of thy business' came right from my heart. In addition to this, it must be recognised that the most intimate combinations result from contraries. The all-pervading calmness of Spinoza contrasted with my excited aspirations, his mathematical method was a counterpart of my poetical thoughts and habits." In Spinoza's doctrine of necessity Goethe found comfort concerning man's dependence upon the outer world which caused him so much pain. It is probable that the famous sentence of the liberation from passions through a clear comprehension of them was very sympathetic to Goethe, for it is a characteristic feature of his poetry that they were confessions as well as liberations of all that moved and disturbed him. As soon as Goethe was able to give to himself a clear account concerning that which had affected his soul and as soon as he could give a poetical form to it so that it became something independent and outside of him, he gained, in the sense of Spinoza's doctrine of liberation from passions, the peace and liberty of his soul. Yet Spinoza's doctrine of necessity was a metaphysical conception. Goethe transferred it into the domains of practical ethics, thus giving rise to his idea of resignation. Goethe writes in the beginning of the sixteenth book of "Wahrheit und Dichtung": "Our physical as well as our social life, customs, habits, worldly wisdom, philosophy, religion, even many incidental events, everything demands of us that we should resign ourselves. So many things which most intrinsically belong to us we are not allowed to develop. That of the outer world which we want as a complement of our nature is taken away and many things which are foreign to us and disagreeable are thrown upon us. We are deprived of everything that we have with difficulty acquired, of everything that is friendly and before we fully comprehend it we find ourselves obliged *to surrender our very personality*, first piecemeal and finally in its entirety." Professor Schneege says that Goethe's practice of resignation gave him solace when he felt low-spirited concerning the limits of human willing and wishing and hoping, and his resignation was as a matter of principle a total resignation. A partial resignation leads to the pessimistic outcry "All is vanity," yet the total resignation affords an inner peace and produces that "air of peace," *die Friedensluft* as Goethe calls it, which surrounds us when reading Spinoza.

One of Goethe's maxims is quite Spinozistic. Goethe says (*Max. und Refl. Abth.* v.): "He who declares himself to be free will feel himself at once dependent but he who dares to declare himself dependent, feels himself free."

Goethe rejected the idea of a personal and transcendent Deity which was urged so strongly upon him by Lavater. Rejecting Lavater's view, he says (*Wahrh. und Dicht.* xiv.): "I assured him in accord with my Realism which is inborn as well

as acquired that since it had pleased God and Nature to make me as I am, I must remain so." The expression "God and Nature" savors strongly of Spinoza's "Deus sive natura."

According to Eckermann (*Gesp. m. G.* ii, p. 169) Holbach's *Systéme de la nature* had also made a strong impression upon Goethe. Nevertheless he was dissatisfied with the spirit of French materialism. He says: "How empty and hollow is this sad atheistic twilight, in which the earth with all its forms and the heaven with all its stars disappear. Matter only is said to exist, being in motion from eternity to eternity, thus producing to the right and to the left without further ado all the innumerable phenomena of being." Goethe's view of "God and nature," did not deny the Deity as such, but identified both in the sense of Spinoza. In this sense Goethe interpreted the sentence: *Qui deum amat conari not potest, ut Deus ipsum contra amet—si homo id conaretur, cuperet ergo ut Deus quem amat, non esset Deus.* The latter idea, "if a man wished that God should love him in return, he would wish that God be not God" is a corollary only to the impersonal conception of Spinoza's non-anthropomorphised Deity. We cannot and we must not think of God as a human being who like a monarch makes favorites of those who are faithful not so much to the divine laws of ethics but to God personally.

Goethe agreed in his views of Spinoza with Herder, who in a letter to Jacobi writes: "The πρῶτον ψεῦδος, my dear Jacobi, in all anti-spinozistic systems is that God is supposed to be the great *ens entium*, the cause of all phenomena, a cypher, an abstract idea which we have formulated. However, that is not so according to Spinoza; God is to him the most real and active unity which says to itself 'I am that I am, and shall be in all the changes of my phenomena that which I shall be.' What you mean, my dear fellows, by an existence outside of the world, I do not understand. If God does not exist in the world, and indeed, everywhere unlimited in his totality and entirety, he does not exist at all. The limitation of personality does not belong to the infinite being, since a person originates with us by limitation as a kind of *modus* or as an aggregate of beings whose activity is endowed with the illusion of unity." A modification of Spinoza's view consists in the recognition of the creative activity which Herder attributes to God. In another letter to Jacobi, Herder writes: "You wish God in the shape of man like a friend who thinks of you. Consider that in that case he must think humanly of you. If he is partial to you he will be partial against others. Explain to me why you need him to be human. He speaks to you, he affects you through all noble men who are his organs and most so through his organ of organs, the core of his spiritual creation, his only begotten. I must confess that this philosophy makes me exceedingly happy. Goethe has read Spinoza since your departure and it is a test case to me that he has conceived him exactly as I do."

Herder was a clergyman and he held the highest position of his church, being Superintendent General. Would the protestant state churches of to-day either in England or in Germany have room for a man like Herder?

Goethe concurred with Herder, that the idea of an extramundane Deity has no sense, an outside God is powerless and an immanent God alone is a reality. He puts in the mouth of Faust the following lines:

> "The God that in my breast is owned
> Can deeply stir the inner sources.
> The God above my powers enthroned
> He cannot change external forces."
>
> *Faust I, Scene 4, Tr. Bayard Taylor.*

Spinoza makes a difference between *natura naturans* and *natura naturata*. A similar contrast is made by Goethe in the following lines which are found among the *Zahme Xenien*, Part vii.

" Life dwells in each celestial body
And on its self-selected roads
It likes to travel with the others.
There are in our earth's deep abodes
The forces, shrouded now in night
And rising up again to light.
If with eternal repetition
Some circles infinitely roam,
If thousand stones in strong construction
Together build life's glorious dome,
Then through all things is pleasure thrilling,
The great, the little, both are blessed,
Yet all this yearning, all this striving
In God the Lord, is eternal rest." *

According to Schneege, Goethe was an agnostic. Faust says :

" Mysterious even in open day
Nature retains her veil, despite our clamors.
That which she doth not willingly display,
Cannot be wrenched from her with levers, screws and hammers."
I, 1. Tr. Bayard Taylor.

This quotation however expresses Faust's despair and not Goethe's philosophical view. It is true that Goethe has made a few utterances which savor of agnosticism, but most of them are expressive of the idea that we can never be through with our wisdom; every new solution proposes new problems.

" *Will mich jedoch des Worts nicht schämen :*
Wir tasten ewig an Problemen."
Zahme Xenien, vii.

[Will not be ashamed of the confession :
We are dealing with problems without intercession.]

How little Goethe was in accord with the view of modern agnosticism or phenomenalism, that we know the outside of nature only and not her inside, can be learned from his opposition to Haller's famous lines :

" Nature's Within from mortal mind
Must ever lie concealed.
Thrice blessed e'en he, to whom she has
Her outer shell revealed."

In answer to the agnostic sentiment of the famous naturalist, Goethe answered with the following verses (quoted in the translation given in "Fundamental Problems," p. 142):

" *Nature's 'within' from mortal mind*"
Philistine, sayest thou,
" *Must ever lie concealed ?*"
To me, my friend, and to my kind
Repeat this not. We trow
Where'er we are that we
Within must always be.

" *Thrice blessed e'en he to whom she has*
Her outer shell revealed ?"
This saying sixty years I heard

* Specially translated for *The Monist*.

Repeated o'er and o'er,
And in my soul I cursed the word,
Yet secretly I swore.
Some thousand thousand times or more
Unto myself I witness bore:
Gladly gives Nature all her store,
She knows not kernel, knows not shell,
For she is all in one.
But thou,
Examine thou thine own self well
Whether thou art kernel or art shell."

We ought to bear in mind that Goethe was no philosopher in the strict sense of the word and did not attempt to have a system that should be free from contradictions. So we read in one place: "Man is not born to solve the problem of the world, but to seek for the limit of the incomprehensible and then to remain within the limits of the comprehensible," and in another place "Man must hold fast to the belief that what seems incomprehensible is comprehensible, for otherwise he would cease to investigate."

The idea of evolution was the basis of Goethe's idea of immortality. Here also he remains in accord with Herder who had proposed in his "Ideas for a Philosophy of the History of Mankind" his views of the development of beings by degrees. Goethe wrote from Rome (See "Herder's Nachlass," ed. Düntzer, Frankfort, 1756, i, p. 17.): "How much I enjoy Herder's 'Ideas,' I can scarcely express. Since I expect no Messiah, this [viz. the prospect of further evolution] is to me the dearest Gospel."

Goethe's idea of the soul is not clearly worked out in its philosophical aspect. He speaks of souls as of monads and believes in a migration of the soul. "I am sure," Goethe said to Falk, "I have been here some thousand times and expect to come again some thousand times."

Goethe was very decided in practical and ethical respects. Goethe deviated from Spinoza by introducing a strong trait of individualism into Spinoza's cosmism.

"*Zweck sein selbst ist jegliches Thier.*" *
[Every creature has its purpose in itself.]

And man is the last product of constantly higher evolving Nature—*das letzte Product der sich immer steigernden Natur*. Nature's intention according to Goethe's view is to produce constantly more perfect creatures. He says: "Imagine Nature standing as a gamester before the roulette table constantly shouting *au double*. With all she has won through all the phases of her activity she continues to play on into infinity. Stone, plant, animal, everything is risked in such hazarding ventures again and again, and who can tell whether man himself is not but a venture for a higher aim." Death was to Goethe no destruction but a dissolution. A destruction or annihilation appeared as an impossibility to him. And his idea of immortality was not one of existence after death but of a continued activity. In the year 1825 Goethe declared to Chancellor von Müller ("Gespräche m. d. Kanzler von Müller," p. 99), that he should not know what to do with an immortality in which he would not find new tasks to do and new difficulties to conquer. (Heidelberg: Georg Weiss.)

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* *Metamorphose der Thiere.*

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Vol. II. No. 4.

CONTENTS:

ZUR PSYCHOLOGIE DER KOMPLEXIONEN UND RELATIONEN. By *E. Meinong.*
WUNDT'S ANTIKRITIK. By *C. Stumpf.*
UEBER DIE UNTERSCHIEDSEMPFINDLICHKEIT FUER KLEINE ZEITGROESSEN. Eine vorläufige Mitteilung. By *F. Schumann.*.
LITTERATURBERICHT.

Professor A. Meinong discusses Ch. v. Ehrenfels's article "Ueber Gestaltqualitäten" * adding the results of his own investigations suggested to him by this essay. Ehrenfels starts from Professor Mach's consideration of figure and melody (see Mach's *Beiträge zur Analyse der Empfindungen*) and proposes the question, What are figure and melody in themselves? Are they merely a combination of elements or are they something in contradistinction to their elements, something entirely new? Melodies and figures, says Ehrenfels, can be so transposed that not any one of their original elements will remain. Thus the similarity of figures in space as well as of tones is something different from the similarity of their elements; they must be something different than their mere sum. This is "the figure-quality" or *Gestaltsqualität*, and Ehrenfels distinguishes between two kinds, (1) those of time (2) those of space, which he calls (1) *Tongestalten* and (2) *Raumgestalten.* In addition to these are discussed the figure-qualities of sensations and of inner apperception. Ehrenfels proposes the psychological question whether these figure-qualities are immediately given together with their foundations or whether they must be considered as the product of a special activity, and he decides in favor of the former possibility. Professor Meinong whose work has been in similar lines, refers to his article "Phantasievorstellung und Phantasie" † and criticises the term "figure-quality," proposing in its stead the words *fundierend* and *fundiert*, using the German term *Fundament* as a correlative expression of "relation." There is no relation without complexity and psychological experience has actually to deal with complex facts only. Melody and figure are names for the totality of the foundations including their "founded" contents.

It may be that we are unduly prejudiced in favor of our own terminology, but it seems to us that the expression "form" will prove to be the most appropriate word. Form is neither quality nor quantity, but form can produce qualities. Let the same qualities, say of chemical elements, combine in different forms, and we shall obtain substances with different qualities. Figure and melody are special kinds of form. Forms consist in and originate through combination, and the unity produced through a special form-combination is actually something new, as much so as if it were a special-creation act. This wonderful power of form makes the study of form all-important in all branches of science. A neglect of the study of form will lead either to materialism when matter and motion are conceived as the only quality-producing factors, or to agnosticism as soon as a deeper inquiry proves that matter and motion are not sufficient to explain the most essential properties of the objects of investigation. We cannot judge from the present article how much

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* *Vierteljahrsschr. f. wissensch. Phil.* 1890. 3, p. 249–292.

† *Zeitschrift für Phil. u. philos. Kritik.* Vol. 95, p. 173. 1889.

Ehrenfels and Meinong are in sympathy with our standpoint, but we can see that their efforts are in the same direction.

The second article is a rejoinder by Prof. C. Stumpf of Munich to Prof. W. Wundt's reply to his critic. Professor Stumpf complains of Wundt that he ignored the points raised in his criticism and that his "Antikritik" consisted only of "a chain of distortions and insinuations."

F. Schumann publishes his results regarding sensibility for the difference between smallest quantities of time. He employed a chronograph modified in two respects from Wundt's chronograph. First he replaced the expensive chronometer by a treading-wheel and introduced Pfeil's time-marker, which, as he thinks, is handier as well as more precise than Wundt's time-marker. Schumann's results agree with the results of Professor Mach showing a maximum of 0·3 — 0·4 seconds, the relation of the perceptible difference to the normal time being in different persons only 0·022. (Hamburg and Leipsic: L. Voss.) κρ̊ς.

PHILOSOPHISCHES JAHRBUCH. Vol. IV. No. 3.

CONTENTS:

Enthaelt die chemisch-physikalische Atomtheorie Widersprueche? By *S. J. Linsmeier.*

Noch einmal zu Platon's Timaeus p. 51 E—p. 52 B. By *Clemens Baeumker.*

Das Gesetz von der Erhaltung des Lebens. (Zusatz der Redaction.) By *W. Frye.*

Die logischen Gaenge des Denkens. By *Dr. G. Grupp.*

W. Wundt's System der Philosophie. By *C. Gutberlet.*

Recensionen und Referate.

The publishers and editors of *The Monist* are not Roman Catholics and we suppose that the majority of our readers are not either. But all the more it appears to us necessary to state as a matter of justice that the Roman Catholic publications (i. e. those which avowedly and confessedly represent Roman Catholic thought) are far superior to their analogous Protestant contemporaries. The latter are debating their particular sectarianisms and do not seem to be interested in the progress of their times. They do not heed the discoveries of science or the views of philosophers, they live in a world of their own. It is different with Roman Catholics. The present magazine proves that they have thinkers among them who keep abreast of the time. It is true that there is more discipline in the camp of Roman Catholics which shuts their champions out from free enquiry in a certain direction concerning some fundamental tenets, but with all this discipline goes along a broad-mindedness in attacking the different problems of modern science and philosophy and bringing them into harmony with the Roman Catholic faith.

The *Philosophisches Jahrbuch* is published by the *Görres-Gesellschaft* and edited by Dr. Const. Gutberlet. Jacob Joseph Görres is the well-known champion of the Catholic Church (1776–1848)—a restless spirit who began his public career as an enthusiastic defender of the French Revolution for the propagation of which he published a fanatical journal *Das rothe Blatt.* With the rise of Napoleon he despaired of the cause of liberty, but he took courage again in the war of independence (1813–1815). In his journal *Der Rheinische Merkur* he denounced bitterly those Germans who still held to the French; he recommended his countrymen to have more love for their language, customs, and traditions and exhorted the princes to stand united against the common foe and re-institute the empire. The

war over he was persecuted by the Prussian government on account of his renewed interests in revolutionary affairs (he had published in 1820 a pamphlet "Germany and the Revolution") and showing a decided inclination to mysticism ("Emanuel Schwedenborg, his Visions and his Relation to the Church," 1827) he joined the Ultramontane party in the conviction that his ideals could be realised in the Roman Catholic Church. The rest of his life he remained faithful to Rome and was the most active, the most vigorous, and also the ablest defender of Roman Catholic views and interests. The present magazine is a Quarterly conducted with scholarship and tact, although as a matter of course not without that prejudice which necessarily results from the principle of giving all thoughts into captivity under a special and foredetermined faith. The last volume (vol. iii) is rich in interesting articles. Prof. Dr. Hayd, strange enough, defends the liberty of investigating the authority of faith, which the editor, however, without rejecting the idea offhand considers as bold (*gewagt*). There are articles on the freedom of will, on the infinite number of possibilities, mongolian cosmology, Pascal's position toward scepticism, analogies between cognition of God and cognition of nature with special reference to Kant's criticism of the evidences of the existence of God. The present number of vol. iv contains an article on the chemico-physical theory of atoms. The question is proposed whether or not this theory contains contradictions. The author starts from Dalton's Definition, whom he regards together with Wallaston as the founder of modern atomism. The four weightiest objections are considered, but the author arrives at the conclusion that all of them are based upon misconceptions. He sums up: "Chemists and Physicists do not repudiate eyes and senses when proposing and defending the atomistic theory. On the contrary they use for their view and build it upon an exceedingly richer material of observation than is employed by their antagonists. . . . . This denial of the validity of the most important objections, however, does not imply that the atomistic theory is without difficulties, gaps, unexplained details, etc. It is not as yet so certain a fact as for instance the heliocentric world-conception. It is an hypothesis still and will have to remain such for quite a long time. Yet we can confidently assert that the difficulties are by far less than those offered to the acceptance of the Copernican hypothesis at the time of the first condemnation of Galileo (1616) which were solved afterward by Galileo in the year 1632. We have further to state that the atomistic theory has been developed more and more since Dalton, the number and the importance of the explanations offered in it have constantly increased."

Dr. Frye of Jena discusses Preyer's latest view of "The Self-Gubernation of Life—*Die Selbststeuerung des Lebens*" which appeared in a recent number of the *Naturwissenschaftliche Wochenschrift* (Berlin). Preyer considers his newly discovered law as a corollary to the conservation of matter and energy and maintains that the total amount of life in the world is as much constant as are matter and energy. Living mass (Mz) plus inanimate mass (Mn) are constant (C); $Mz + Mn = C$. So far scientists will agree, but Preyer adds that each separate item is constant for itself. He declares that "the total amount of protoplasm in the world remains unchanged in quantity." It is hardly probable that Preyer's view will be adopted by science.

Dr. Grupp discusses the logical paths of thought, and the editor, Professor Dr. Gutberlet explains and criticises Wundt's System of Philosophy.

One of the most valuable features for Catholic readers must be considered the book reviews. Here the thoughts of the most advanced thinkers are as it were digested for the Catholic world. The material is carefully sifted but the exposition

of heretic opinions is not evaded. The criticisms from the pen of Dr. Gutberlet are often trenchant and should not be left unheeded by the adversaries of the Church. (Fulda: Verlag der Fuldaer Aktien-Druckerei.) *κρς.*

RIVISTA ITALIANA DI FILOSOFIA. July and August, 1891.

CONTENTS:

La Scienza dell' Educazione nelle Scuole e nelle Riviste italiane. By *F. Cicchitti-Suriani.*

La Filosofia di Empedocle. By *S. Ferrari.*

Scienze filosofiche e sociali: Relazione sul concorso ai premii ministeriali. By *A. Chiappelli.*

Alcune considerazioni sull'Eclettismo. By *L. Ferri.*

Bibliografia, etc.

The Science of Education in Italian Schools and in Italian Reviews. Every nation is said to possess a peculiar physiognomy of its own, through which it is distinguished from every other nation; and consequently any nation will adopt a system of education that is best suited to its own national genius, to its racial, religious, and historical traditions. This may be true in a purely practical sense; but on the other hand, education, theoretically, as science or pedagogics, passes the narrow limits of any state or form of government, and ought to be ruled by principles and general laws common to the entire human family. Historically, ever since the 16th century, the educational movements in Italy have been directly called forth by the Catholic revival and reaction during and immediately following the period of the renaissance. Such was the origin of the *Filippini*, *Ignorantelli*, *Barnabiti*, *Ignaziani*, *Calasanziadi*, *Somaschi*, and of many other religious teaching-bodies that have made Italy until recently a bustling arena of ecclesiastical educational systems.

The Philosophy of Empedocles. This first instalment of Signor Ferrari's studies deals with the cosmological ideas of the great Agrigentine poet-philosophers. From the formation of the first elements to the highest functions of the human soul throughout, we perceive that everything is governed by the same laws, and that which is best, all happiness in fact, is only found in unity and harmony, evil and pain in disagreement and in separation. The law of evolution, in the modern sense of the word, prevails everywhere in the physical system of Empedocles. Yet his philosophy did not exclusively consist in mechanical evolution. To his cosmological doctrines were added moral and religious tenets, which, however, are not evolved continuously with the former. (Rome. Tipografia delle Terme Diocleziane di G. Balbi—160 Via Cavour, 162.) *γνῖν.*

VOPROSUI FILOSOFII I PSICHOLOGII. Vol. II. No. 4. May, 1891.

CONTENTS:

Ethics of Life and of the free Ideal. By *K. Ventzel.* (In this article the writer explains and criticises the well-known ethical theories of the late French thinker M. Guyau.)

The Pessimist theories of knowledge: Criticism, Positivism. By *E. de Roberti.*

Religious Metaphysics of the Moslem Orient. (Conclusion.) By *S. Umanetz.*

Letters on Count Tolstoï's book. "On Life." (Conclusion.) By *A. Kozloff.*

(The writer concludes his letters to Mr. N. N. with remarks to the effect that Count Tolstoï's philosophy in all its aspects and phases is manifestly characterised by a principle of *dualism.* In the development of this general principle through the different phases of his system and in his theory of knowledge this dualism might assume the name of rationalism, in metaphysics, that of idealism, and in ethics the name of ascetical, quietistic eudemonism.

On Determinism in connection with mathematical Psychology. By *N. Shishkin.* Lecture delivered before the Moscow Psychological Society. February, 1891.

The Domain and Limits of Suggestion. By *N. Bajenoff.* Lecture delivered at the annual session of the Moscow Psychological Society. January, 1891.

Anent the Fictions of professed Christianity. By *Vladimir Solovieff.*

(This article has appeared in an English translation in *The Open Court*, Nos. 206 and 208, under the title "Christianity: Its Spirit and its Errors." It is a remarkable contribution to the literature of to-day. Professor Nicolas von Grote of Moscow writes about its author: "Vladimir Solovieff is at present, besides the Count Tolstoï, our most eminent thinker; he is a distinguished philosopher as well as theologian. . . . You Americans should be familiar with his works on religious and ecclesiastical 'questions.'' Vladimir Solovieff is the author of the following works: "The Religious Foundations of Life," "The Dogmatic Development of the Church," "Judaism and the Christian Question." (These titles are translated from the Russian.) Other writings of his are "L'idée russe," "La Russie et l'église universelle," "Geschichte der Theokratie.")

Special Department. (1) Hegel's Ontology. A Posthumous Dissertation. By *N. P. H. Platonoff.* (2) The Influence of fatigue upon the intuition of special relations. By *Nik. Marün.* (3) Fundamental moments in the evolution of the new philosophy. Main tendencies of the new philosophy. Empiricism and Naturalism. Bacon and Hobbes. By *N. Grote.* (Moscow.) *γνλν.*

VOL. II. JANUARY, 1892. NO. 2.

THE MONIST.

MENTAL EVOLUTION.

AN OLD SPECULATION IN A NEW LIGHT.

THE theory of organic evolution, now generally accepted, needs to be supplemented by a theory of mental evolution. On a superficial examination of the matter the necessity for such a supplementary theory does not perhaps strike one as obvious, the mental seeming naturally to arise out of the organic and to be part of one continuous development. But closer investigation and a more rigid and exact treatment bring to light certain important and peculiar features, and disclose the necessity of some such hypothesis as it is my purpose to set forth briefly in the following pages.

By organic evolution I mean the natural development, whether by "selection" alone or by this in co-operation with other natural processes, of the organisms which live upon the surface of this earth; and by mental evolution I mean the natural development of the mental faculties in at least the higher animals among these organisms. Now with regard to organic evolution there is no common and general agreement in respect of the first origin of primitive life on the earth. Some evolutionists believe that the living was somewhen, somehow, and somewhere evolved from the not-living. Others do not feel justified in holding this view, and deem it wiser to restrict their speculations as to natural genesis within the limits of the organic. So too at the other end of the developmental curve;

there is no common and general agreement as to the evolution of the mental faculties or spiritual being of man. Some evolutionists believe that both in body and in mind, man is the product of natural development; others do not feel justified in holding this view, and retain unshaken the conviction that man in his spiritual essence is no part nor product of the common elements of nature. Seeing then that on either side there is want of agreement, on the one hand as to the origin of life, on the other as to the origin of man, I shall deal for the most part with that large area concerning which there is a more unanimous consensus of opinion, and in the main confine my speculations within the field of mental evolution in animals, ranging, say, from the amœba to the dog.

Few will be found to deny or even to question the fact that our dumb companions and four-footed friends have mental faculties which enable them accurately to adjust their actions to the varied circumstances in the midst of which their lives are passed. Even if we see cause to hesitate, as I myself hesitate, before we ascribe to them self-consciousness and reason, in the narrower sense in which this word is used; still we must acknowledge that their instincts are powerful, their intelligence wonderfully keen and active; and that they are capable of strong emotional feeling both of affection and of antipathy. Should we so welcome them as our companions and friends if we regarded them as unconscious, insentient automata? But when we turn to the other end of the scale of life, to the amœba and all the myriad minutiæ that swarm in ponds and stagnant pools, we are wont to speak with less confidence. Their consciousness, if so we can call it, is of so simple an order, their sentience of so low a grade, that we can hardly with any accuracy use the phrase "mental faculties" with reference to organisms so lowly. We feel uncertain whether in their case unconscious automatism does not after all pretty accurately express the facts. At any rate it would trouble us little or not at all if some one proved their automatism to-morrow. And yet, on the theory of evolution, out of such lowly beginnings have sprung the sagacity and affectionate devotion of the dog. But if the amœba and his tribe are insentient automata, at what stage of the development did con-

sciousness creep in? And whence came it? Or put what is fundamentally the same question in another way. In the common course of generation the dog is developed from a minute egg-cell, one hundredth of an inch or less in diameter, with which a yet more minute sperm has entered into fertile union. Supplied with shelter, warmth, and nutriment by that maternal self-sacrifice which is a deeply significant fact of organic progress, this little speck of living stuff passes, by a process strictly continuous, though profoundly modified by the catastrophe of birth, into the dog with its wealth of intelligence and affection. It is surely impossible without extravagance to speak of the fertilised ovum as conscious. Where then in the continuous process of development does consciousness come in? How, and whence? We are not nowadays to be put off with the ambiguous assertion that consciousness and intelligence are "potentially" present in the germ. We ask: What is *actually* present therein as the basis of this potentiality? Or are we told that consciousness dawns at or shortly after the catastrophe of birth? Then again we ask: Whence comes this dawning consciousness, and by what means does it become associated with the puppy's brain? In yet another form does a question of like general implication suggest itself. Granted that in the ovum there is present something which we may call the germ of consciousness somehow associated with the protoplasmic material of which that ovum is constituted. How comes it that, in the adult dog, consciousness is associated with the brain? Why is the association of consciousness concentrated, so to speak, in this one tissue of the many which arise during the differentiation of development? That the association is so concentrated or specialised is now generally admitted to be the fact. We speak indeed of the skin, the palate, the nose, the eye, the ear, as each in its kind sensitive. But none the less we believe that the seat of consciousness is the brain or some part of it. Only when the nerves running inwards from skin, palate, nose, eye, or ear, have conveyed their appropriate stimuli to the brain, does that organ tingle with the accompaniment of consciousness. There and there only does consciousness "emerge"; not in peripheral sense-organ or ingoing nerve. But why? How comes

it that there is this peculiar association of consciousness with the functioning of a particular organ?

Perhaps we are told that consciousness is the special product of brain-tissue. But let us note that the word "product" is here used in an unwonted sense. We are not likely, it is to be hoped, to fall into the crude and demonstrably false materialism expressed in the formula, "as the liver secretes bile, so does the brain secrete consciousness." Consciousness being immaterial, the second and fourth terms are incommensurable, and the formula is sheer nonsense. Nor are we likely (though here there is greater danger) to fall into the more subtle error of regarding consciousness as a mode of energy. "Granted," says Professor Tyndall, "that a definite thought and a definite molecular action of the brain occur simultaneously; we do not possess the intellectual organ, nor apparently any rudiment of the organ, which would enable us to pass by a process of reasoning from the one to the other: the chasm between the two classes of phenomena would still remain intellectually impassable." Consciousness is something *sui generis*. It is neither matter nor energy. It may accompany the transformations of energy in the dog's brain; but to the category of these transformations of energy it does not, and, for any clear thinker, can not belong. And if we are told that the word "product" is used in the sense implied by Professor Huxley when he speaks of phenomena of consciousness being "called into existence" by physical processes; then we must again ask whence they are called into existence. We do not now speak of matter or energy being called into existence from a shadowy nowhere. When a cloud is called into existence on a mountain peak we know that the material particles have only assumed a new form. When the electrical current is called into existence or generated as we phrase it, we know that we are dealing with one of the many transformations of energy. And when phenomena of consciousness are said to be called into existence, we have a right to ask: Do you mean, by this phrase, creation *ex nihilo?* Or do you mean, origin by transformation? And if the latter, transformation of what?

Having thus opened up these several questions, all of like im

plication, let us now endeavor to set forth the answer which seems most philosophical and most closely in accordance with scientific analogies. And to this end let us consider the living dog. His frame is pulsating with life and restless activity, and somehow associated with the transformations of energy in that brain of his there is consciousness—or what in the dog is the analogue of that consciousness with which alone I can claim any acquaintance at first hand, my own. Were his skin and the walls of his skull as transparent as glass; did the molecular vibrations of his brain lie open to the keenest scrutiny of the physical investigator; could we trace in detail all the varied and orderly transformations of energy of which that brain is the theatre; the accompanying consciousness would still be beyond our reach. *We* might follow the changes of energy; he alone would feel the states of consciousness. But suppose that the dog dies. His body lies before us stiff with the *rigor mortis*. If we had weighed it previous to death, and if we were to weigh it again after death, the scales would give us no information of the departure of anything material. All signs of consciousness, however, are gone. And could we see through skin and skull into the brain, which during life was the theatre of so complex and orderly a sequence of transformations of energy, we should find that it was still and motionless. It is true that we cannot actually do this. But we know that, whereas, during life, the functional action of the brain gives rise to certain material products, at death the production of these substances ceases. We are therefore justified in saying that, omitting minor qualifications, the orderly transformations of energy in the brain and the concomitant consciousness cease together at death. Closely associated during life, varying together in health and sickness, ceasing together at death, what is the nature of their connection?

On the hypothesis of scientific monism it is believed that they are different aspects of the same phenomena: that what objectively to the physical investigator are transformations of energy in the brain, are subjectively to the dog states of consciousness? Let us look into this hypothesis. Let us see whither it will lead us; and if it will in any way help us over some of our difficulties. But first

let us pay a moment's attention to the impatient exclamation which some may feel inclined to interpose, that this assumption of the ultimate identity of brain-energy and consciousness, the two being respectively the objective and subjective aspects of the same occurrences, does not in the least do away with the mystery of the matter. That the same two occurrences should have different aspects, objective and subjective, is, it will be said, just as mysterious as that two separate existences energy and consciousness should be associated together. Of course it is. I should be shallow and pretentious indeed if my object were by any *hocus pocus* to attempt to hide the so-called mystery. *All* ultimate facts are mysterious. The fall of a stone to the ground is to-day as mysterious as it was in the days before Newton; the phenomena of life, as mysterious as in the days before Darwin. Our advances in science and in thought may do away with minor mysteries, but they leave the great ultimate facts of nature as mysterious as before. The end of our explanations is always to bring us face to face with the inexplicable. Not, therefore, in any hope of doing away with an ultimate mystery do I suggest that we look into and follow out some implications of this so called identity hypothesis.

Let us regard the matter from the objective aspect first, from the side to which the occurrences present themselves as transformations of energy. The state of consciousness being *ex hypothesi* accompanied or "called into existence" by certain complex and orderly molecular vibrations in the brain or some part thereof, we have to note that from the physical point of view these molecular vibrations constitute an exceeding complex and orderly mode of energy. It is upon this energy that we must fix our attention; the material structure of the brain being what we may call the vehicle of its manifestation. I am anxious that the reader should carefully follow me here. We are too apt to regard the *structure* as the essential thing on which to concentrate our mental gaze, partly no doubt because, through the invaluable labors of microscopists, we know so much that is definite about this structure. But a more penetrating insight enables us to see that the structure is merely the necessary basis of what is the really important thing—the man-

ifestation of energy. The material structure of a steam-engine is of importance. But why? Because it is the vehicle for the performance of work. That is the really essential part of the business. In like manner nerve-structure is of importance. But why? Because it is the vehicle for what Professor Huxley happily termed the neurosis, the complex and orderly manifestation of energy. The essential importance of looking at the *going* machine, at the performance of work, at the energy of the matter in motion, not merely the material structure that is moved—the essential importance, I say, of fixing our attention on this, being fairly grasped, we may now proceed to enquire from what the complex and orderly vibrations of the dog's brain have been evolved. In the fertilised ovum from which the dog was developed, (and the same is true of the amœboid ancestor from which, hypothetically, the race of dogs has been evolved,) there is certainly nothing approaching the orderly complexity of these molecular vibrations. But there are simpler organic modes of motion from which these complex molecular vibrations have arisen by a continuous process of development. It is from these simpler modes of energy in the simpler organic substance of the ovum that the more complex modes of energy which characterise the workings of the dog's brain have been evolved. In the development of the ovum into the embryo, and thence into the puppy and the dog, we may trace step by step all the stages of the evolution of those material structures which are the vehicles of these special manifestations of organic energy. We may watch the further and further differentiation of the nervous tissue, and the fashioning of the brain and its parts. It is true that we cannot indicate the exact moment when, in the increasing complexity of the tissues, the simpler forms of organic energy pass into the higher form of brain energy accompanied by consciousness. But that is just because it is a continuous development, an evolution. That the passage from the one into the other does actually take place we are bound, by all the canons of logical reasoning, to admit. It is only during life, however, that neurosis occurs or is possible. A great number of modes of organic energy proceed side by side in the pulsating tissues of the living dog, their orderly continuance

being what we term *life*. And only in and through their orderly continuance is the maintenance of the structure of the tissues rendered possible. The organic structure is like a spinning top. Only so long as it spins and manifests its proper energy is its stability maintained. All around it are forces which tend to make it totter to its fall. But so long as it spins freely it can resist all minor attempts to upset its stability. And when the dog dies; what happens then? The molecular vibrations of the brain in common with all other forms of organic energy cease. The top no longer spins; and the structure totters to its fall. Decomposition sets in. The orderly organic changes which characterise life, give place to the destructive changes which characterise decay. But according to the law of the conservation of energy, although there is decomposition of the tissues of which the body was composed there is no destruction or annihilation of energy. The particular modes of energy through which the body was instinct with life pass away; but only to give rise to their equivalents in other modes of energy. Just as the puddle in the road disappears, but only to give origin to an equivalent mass of invisible water-vapor; just as the candle disappears, but only to give rise to its equivalent mass in the products of combustion; so throughout life and in death the energy which throbs in the tissues neither appears nor disappears except at the expense of, or to the gain of, other modes of energy. Life is like a vortex in a rapid stream; on surrounding energy it is dependent for its continued existence; into surrounding energy it melts away. And this is true not only of individual life but of life in its entirety. Some believe that the vortex had a natural origin, the organic being evolved from the inorganic. Others hold that it was through the direct interposition of the finger of God that the tiny vortex of primitive life was set a twirling. Be this as it may, once initiated the vortex of life is dependent on surrounding stores of energy.

Turning now from the objective aspect to the subjective aspect we pass from neural processes to states of consciousness. In the language of the identity hypothesis, here provisionally adopted, the states of consciousness in the dog's mind, are the subjective aspect of what, from the objective aspect, are the molecular vibrations of

his brain-tissues. And as in considering the matter objectively, so now in regarding the mental aspect, we must ask from what the complex and orderly states of consciousness of the dog's mind have been evolved. In the fertilised ovum from which the dog is developed, (and the same is true of the amœboid ancestor from which, hypothetically, the race of dogs has been evolved,) nothing so complex as a state of consciousness is to be found. From what then have the states of consciousness been evolved? Do we not seem forced by parity of reasoning to answer: From something more simple than consciousness but of the same order of existence, which answers subjectively to the simpler organic energy of the fertilised ovum? Such, at any rate, is the hypothesis which appears to me the most philosophical and the most logically consistent. It requires, however, no little effort of thought to conceive the existence of those elementary states from which consciousness may have had its origin. We may be aided in doing so, perhaps, if we fix our attention on the close association of brain-energy and states of consciousness, regarding them as *distinguishable* but not *separable*. Now the nervous energy of the brain is extraordinarily complex; and yet we believe that it arises by a process of continuous development from the much less complex energy of the fertilised ovum. In the ovum there is no brain-energy; there is only the far simpler germinal energy from which it is evolved. So too, the consciousness in the dog's mind is wonderfully complex; but if it has arisen by a process of development, it must have been evolved from something of like nature only indefinitely simpler. May we not fairly suppose, therefore, that in the fertilised ovum, though there is no consciousness, there are the germinal states from which consciousness may be evolved? Or to put the matter tersely, may we not say: As the complex molecular vibrations of the brain are to the simpler molecular vibrations of the ovum; so are the complex states of consciousness associated with the former to the simpler states of infra-consciousness, if we may so call them, associated with the latter? It is the association of consciousness and infra-consciousness with energy—its objective manifestation—that is the distinguishing feature of the view which I am endeavoring to set forth. Concomitant

with the evolution of higher modes of organic energy from those lowly modes which alone obtain in the ovum or the amœba, is the evolution of consciousness from lowly modes of infra-consciousness.

It is true that it is only through the exercise of the conceptual faculty of reason, never through the senses or by direct perception, that we can reach this suggested infra-consciousness. But this will hardly be regarded as a valid objection by those who believe in the existence of the ether, or by those who adopt the atomic theory, neither of which could be reached by the senses or by perception alone. Still less will it be regarded as an objection by those who have grasped the distinction between energy as manifested in the objective world, and consciousness as inevitably subjective. Of no consciousness other than our own have we direct and first-hand experience. And yet certain manifestations of energy as exhibited by other living beings force upon us the conviction that we are not alone in possessing the subjective attribute of consciousness. That not only the dog and the elephant, but the bee also and the spider are endowed with this attribute and are conscious, though not self-conscious, few of us doubt for a moment. But their consciousness is presumably far simpler than ours. Carrying this simplification yet farther down the scale of animal life, we reach in the jelly-fish, the sea-anemone, and the sponge, forms of life which can hardly be said to be conscious at all with a consciousness comparable to our own. Yet they would seem to be endowed with the dim foreshadowings of such consciousness. Finally in the amœba and the monad we have these dim foreshadowings reduced to the lowest terms that are suggested by the study of organic life. If, then, in the series of organic forms, down even to the lowest, we admit consciousness or its foreshadowing, though it lies and must ever lie beyond the reach of our senses, why should we hesitate to generalise our belief in logical and scientific form, and hold that all organic modes of energy are associated with conscious or infra-conscious states?* It may perhaps, be objected that such a view, carried to its logical conclu-

* I have elsewhere (*Animal Life and Intelligence*, p. 467) suggested the term *kinesis* for the manifestation of energy, and the term *metakinesis* for its conscious or infra-conscious aspect.

sion involves the supposition that all the tissues of the body are conscious or at least infra-conscious, whereas it is a well-established scientific conclusion that consciousness is specially associated with the nervous tissue of the brain. I see no reason, however, why this conclusion should not be accepted. If the organic transformations of energy in the ovum are associated with what for lack of a better term I have here called infra-consciousness, then there are two possibilities. Either the accompanying consciousness is *entirely* concentrated in association with the molecular vibrations of the brain; or it merely becomes *dominant* in the functioning of that tissue and continues in the dim infra-conscious condition in the other tissues of the body. Now to judge from our own experience it is only the dominant molecular vibrations in the brain that are accompanied by the clear light of consciousness. The sub-dominant neural changes are indeed accompanied by a dim sub-consciousness. But there are many molecular changes (even in the cerebral hemispheres themselves where consciousness is "called into existence") which do not rise to the level of consciousness at all or are quite lost in the glare of that consciousness. Why this should be so I am not prepared to say. It seems to be a law of our mental being. Certainly it is convenient that it is so; and it may have been fostered or established by natural selection. We all know the sense of confusion that arises when, in certain states of intense nervous excitement, a host of ideas are crowding up into dominance and jostling each other for supremacy. An organism so constituted that such a state of things was normal, would, we may suppose, stand but a poor chance of survival. Hence perhaps there has arisen that due subordination of conscious, sub-conscious, and infra-conscious states which characterises the normal life of conscious beings. Having regard, then, to the cerebral hemispheres where consciousness emerges, not all the molecular changes there transpiring rise to the level of full consciousness. There is not a little of what Dr. Carpenter used to call unconscious cerebration. We seem forced to admit the existence of submerged states of consciousness; states which are infra-conscious, but which may become conscious at any moment by rising into dominance. And if in the cerebral hemi-

spheres there are infra-conscious states, why should there not be associated with every molecular thrill of the living body yet lower states of infra-consciousness too deeply submerged ever in man to become dominant?

It is, however, one thing to show that there is no insuperable objection to accepting the existence of such infra-conscious states, if such existence be otherwise probable, and another thing to establish this probability. And this leads us back again to the grounds on which their existence may fairly be regarded as probable. We are told that the mental faculties of the dog in common with his physical or organic frame, have arisen in the course of ages by a process of development. It is clear that such a statement is intended to apply to the living dog with active faculties; to a *going* mechanism, or rather organism which is also conscious. Well and good. The material structure has been evolved from lower forms of matter: the organic modes of energy (in virtue of which he lives), from lower forms of energy; the mental states (in virtue of which he is conscious), from—what? I suggest in continuation and conclusion of this sentence—from lower forms of infra-consciousness; that is to say, of what is of the same order of existence as consciousness, but has not yet risen to the level of consciousness. Many people will no doubt see no necessity for such a conclusion. It is making an unnecessary bother, they will say, about a very simple matter. At some undefined stage of organic evolution—perhaps when nervous tissue had its genesis, perhaps earlier—consciousness began to dawn and has since developed in clearness and brightness during the evolution of higher and higher organisms. According to this view, the ascending curve of evolution is divisible at some undefined point into two portions: of which one represents organic evolution previous to the dawn of consciousness; the other organic evolution subsequent to the dawn of consciousness. But the question at once suggests itself: From what did consciousness dawn at this undefined point? In answer to which there are some who do not hesitate to reply that the consciousness arose out of the physical conditions; that when the rhythmic dance of organic molecules reached a certain intensity and intricacy consciousness was developed. There is, in-

deed, a certain class of nerve-physiologists, or of medical men who write on nerve-physiology, who, if they do not hold that states of consciousness are generated from the energy which accompanies the working of the brain-tissues, at any rate write as if this was their belief. But such a view is quite untenable. If there is one thing clearly established, both by those who have approached the matter from the scientific side, and by those who have approached the matter from the metaphysical side, it is that the distinction between energy and consciousness is radical and absolute. No conceivable increase in the orderly complexity of the molecular vibrations of brain-tissue could give rise to that consciousness which differs *toto cælo* from any manifestation of energy.

And yet though stated in a form that is philosophically false, and therefore misleading, the conclusions of these earnest students of nerve-physiology are practically sound. Grant, for the moment, that the states of consciousness in the dog's mind are the subjective aspect of the molecular energy of his brain. Then the following diagram (Fig. 1.) will represent the ascending curve of development which, from the objective aspect, is a development of modes of energy, and from the subjective aspect is a development of modes of consciousness.

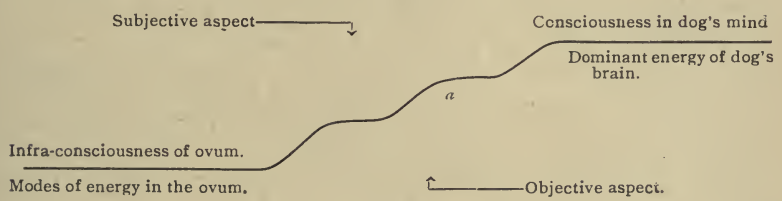

FIG. 1.

Now what the nerve-physiologists are sometimes apt to do is, at some moment of development say *a*, to change their point of view, from the subjective aspect which deals with consciousness to the objective aspect which deals with energy. Their conclusions are practically sound because they are still dealing with the same developmental curve. They state these conclusions in language which is philosophically misleading because they suddenly jump from the subjective aspect to the objective aspect and ignore the great distinc-

tion between the two. When they say that consciousness emerges from the physical conditions at *a*, they presumably mean that at this point we are first justified in speaking of consciousness or the subjective aspect in anything like a human sense. But is it not more logical to hold that, just as from the objective standpoint the complex energy of the dog's brain has been developed from the simpler energy of the ovum, so from the subjective standpoint, the complex consciousness of the dog's mind has been developed from the simpler infra-consciousness of the ovum? And if we do not accept this view, do we not seem committed to the unevolutionary doctrine that the conscious aspect suddenly makes its appearance, without those lowly germinal beginnings which it is of the essence of any theory of development to postulate?

It will perhaps be said that all this assumes an identity hypothesis, with its supposed double aspect, which is not accepted by the majority of men of science. Let us look at the matter, therefore, from what would seem the only other point of view open to one who accepts the theory of development as applicable alike to the dog's mind and to the dog's body. If states of consciousness and the molecular transactions in the brain are not different aspects of the same occurrences, they are parallel, concomitant, or associated phenomena. Our diagram will thus become that given below.

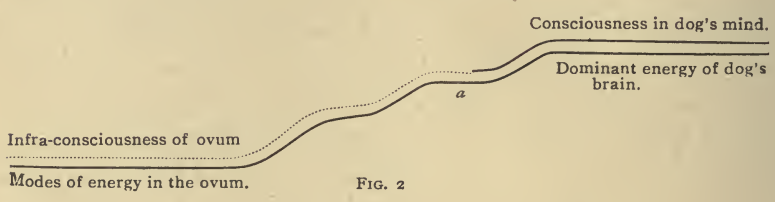

FIG. 2

Here the parallel or associated phenomena occur together at the higher end of the developmental curve, and, at *a*, the consciousness is supposed to emerge. On this view there is less justification for the nerve-physiologists' assertion that it arises out of physical processes; for it is not simply another aspect of these processes, but something wholly different arbitrarily associated with them. Even on this view it would seem more logical to suppose that since

the association of mental states with the dominant neural energy is of normal occurrence from *a* onwards, the consciousness there emerging has been evolved from infra-consciousness parallel and concomitant with the physical processes in the ovum. If this be not so, we may once more ask : From what has the parallel line to the right of the diagram been evolved? We cannot say from the neural conditions without changing our point of view and ignoring the great distinction between matter and energy on the one hand and consciousness on the other. From what then has the consciousness been evolved, if not from something of like nature only indefinitely simpler which has here been spoken of as infra consciousness?

We must now take a further step, one however in which all evolutionists will not be prepared to follow us. Attention has already been drawn to the fact that those who accept the theory of evolution are not agreed in their faith—for it is on either side a matter rather of belief than of demonstration—with respect to the origin of life. Some believe that the primitive organic germs were not produced by natural development nor through any process of evolution. For such, the hypothesis I am advocating must be submitted in the following form—when first the life-energy was started by the direct interposition of the finger of God it was endowed with some dim form of infra-consciousness which in the course of evolution developed into consciousness. And presumably those who see in the amœba and the fertilised ovum some dim foreshadowings of consciousness may follow me thus far. But for those who believe that the organic has arisen on this earth by process of natural development from the inorganic, the hypothesis must be more sweeping in its range. We must say that all modes of energy of whatever kind whether organic or inorganic have their conscious or infra-conscious aspect.* Startling as this may sound there is, I believe, no other logical conclusion possible for the evolutionist *pur sang*. For where are we to draw the line ? The states of consciousness of the higher animals have been evolved from lower forms of infra-consciousness

*In the phraseology I have elsewhere suggested, there is no kinesis unaccompanied by its metakinetic aspect.

in the amœba-like or yet more simple protoplasmic germs in the dawn of life. But if those low forms of organic infra-consciousness were themselves evolved, from what could they arise if they were not developed from yet more lowly forms of infra-consciousness similar in kind but inferior in degree associated with inorganic transformations of energy? In any case it is here submitted that this doctrine that infra-consciousness is associated with *all* forms of energy is necessarily implied in the phrase mental evolution for all thinkers who have grasped the distinction between consciousness and energy. And if this be admitted there is disclosed, by implication, an answer behind and beyond that ordinarily given to a question which has again and again been asked—the question:—Is there a conservation of consciousness analogous to the conservation of energy? The negative answer generally given to this question results from the fact that the question itself has always been put in a form which does not admit of a satisfactory solution. There is not a conservation of consciousness any more than there is a conservation of neural energy or a conservation of electricity. There is no conservation of neural energy because this is only one mode of energy which may be transformed into other modes. Not until we have generalised energy so as to include *all* its modes can we speak of conservation in reference to it. So too not until we have generalised that universal form of existence, of which consciousness is only the highest and most developed mode, so as to include all modes, can we speak of conservation in reference to it. But so generalised I submit that there is a conservation of that form of existence which includes both consciousness and infra-consciousness, co-ordinate and coextensive with the conservation of energy.* Just as the dominant neural transformations in the dog's brain are like a special vortex in the onward-flowing stream of the world's energy, so are the states of consciousness in his mind like a special vortex in the onward flowing stream of that mode of existence which, whether it have risen to the level of consciousness or not, is still of the con-

* That is to say, a conservation of metakinesis co-ordinate and coextensive with the kinetic conservation of energy.

scious order. For the believer in scientific monism there is but one vortex, objectively presented as energy, subjectively felt in consciousness. For the dualist there are two vortices, (1) an objective vortex and (2) a subjective vortex associated with the other and "called into existence" by it. In either case the vortex is dependent for its continual existence on surrounding stores of that out of which it has arisen; and in either case the modern tendencies of scientific thought suggest conservation which is but the antithesis of creation *ex nihilo.**

In conclusion it should be noted that this hypothesis is but a new presentation of an old speculation. It differs as it here stands from any theory of "mind-stuff" in that it regards the question rather from the dynamical than from the statical point of view. Not "mind-stuff" answering to matter but a universal conscious order or aspect of existence answering to universal energy is the leading idea I have sought to develop. In its newer form, again, this hypothesis differs from the view that "all force is will-power," or the view that "all matter is conscious," or the theory of "intelligent monads," in endeavoring, not to carry anything like *our* consciousness down into association with the simpler manifestations of energy, but rather to seek in association with these lower manifestations the germinal states indefinitely simpler than consciousness, from which nevertheless consciousness has been developed. Finally the keynote of this newer presentation is that which is the keynote of all modern theories of life and of thought—the doctrine of evolution.

C. Lloyd Morgan.

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*The bearing of this conservation of consciousness and infra-consciousness (metakinesis) on Eastern conceptions of immortality and on transmigration would be an interesting theme to follow out but is beyond the scope of the present paper.

THE NEW CIVILISATION DEPENDS ON MECHANICAL INVENTION.

BY reason of his physical nature man is hampered by three wants —he needs food, clothing, and shelter. In his first and lowest stage of civilisation man lives in a state of enthrallment to nature. He dreads and worships the cruel forces of matter. But by the aid of science, and invention which flows from science, man attains domination or control over things and forces and directs them into the service of humanity for use or for beauty. The soul conquers nature by science and machinery and then it next desires to see this conquest over nature reflected in works of art. Hence it creates architecture, sculpture, painting, music, and poetry, all of these fine arts portraying man's victory over wants and necessities.

If the spectacle of pauperism and crime, the savagery that still lingers in the slums of our cities, sternly reminds us of the yet feeble hold which our civilisation has obtained even in cities—if the census of mankind proves that three-fourths are yet counted as below the line that separates the half-civilised from the civilised—yet we are wont to console ourselves by the promise and potency which we can all discern in productive industry aided by the might of science and invention. This view is always hopeful. We see that there is a sort of geometric progress in the conquest over things and forces. The ability of man to create wealth continually accelerates. The more he obtains the more he can obtain. The more each one gets the more his neighbor also can get. Even the weakling of society, the pauper or beggar, the insane, and the criminal all fare better in the centres of wealth than they do at a distance from them where

there is no wealth to beg or steal and no asylums created and sustained by wealth to shelter and heal their diseased bodies.

Wealth in the modern sense of the word, far more than in its ancient sense, is self-productive. It is capital, and capital is wealth that generates wealth. Capital represents conquered forces and things—conquered for the supply of human wants. Capital consists of natural forces yoked and set to work for food, clothing, shelter, and the facilities of human culture. The three physical wants (food, clothing, and shelter) are produced by nature—they are the chains and fetters whereby nature asserts her right to enslave humanity—to keep man in a state of thralldom.

But the Promethean cunning of man, realised first in science and next in useful machines, has succeeded in subduing the powers of nature and imposing on them the task of supplying and gratifying the very needs which nature creates in us. Nature had chained man to the task of daily toil for food, clothing, and shelter. But man turns back upon nature and compels her to take the place of human drudgery and produce an abundance of these needed supplies and bring them wherever they are needed for consumption. This is accomplished by mechanical combinations that secure the service of steam, electricity, and various devices of earth, air, fire, and water.

This self-generating wealth that exists in the shape of capital is so much on the increase that it fills all classes of our population with hopes or if not with hopes at least with discontents—and discontent is certainly the product of hope struggling up from the depths of the soul. Without the vivid perception of a higher ideal and without the feeling that it is attainable, there would not be any such thing as discontent. The average production of man, woman, and child in the United States increased in the thirty years between 1850 and 1880 from about 25 cents per day to 40 cents per day—an increase of over 60 per cent. This means the production of far more substantial improvements for human comfort. Much more wealth is created that possesses an enduring character and may be handed down to the next generation. Finer dwellings, better roads and streets, fences for lands, drainings and levelings, and the processes necessary to bring wild land under cultivation, artificial sup-

plies of water and gas, the warehouses and elevators, and the appliances of commerce—and finally the buildings and furnishings of culture, including churches, schools, libraries, museums, asylums, and all manner of public buildings. Great Britain, the leading nation in commerce and manufactures, according to the returns for 1888 (see Mulhall's "Dict. Statistics," new edition) distributed comfortable incomes of $1000 and upwards to each family of 30 per cent. of the entire population, and the remaining 70 per cent. averaged $485 per annum (for each family). France provided incomes of $1300 per annum for 24 per cent. of its families. This shows what great capitalists are doing for the creation and distribution of wealth. Italy showed by its income returns that less than 2 per cent. received incomes of $1000 and upwards, while 98 per cent. of the families averaged less than $300 income. Italy makes little use of steam power and labor saving machines.

If science progresses and its concomitant, useful invention, progresses as fast for the next hundred years as it has done for the past forty years, the vision of Edward Bellamy of comfort for all will be realised without the necessity of any form of socialism. There will be comfort and even luxury for all who will labor a moderate amount of time.

Science inventories nature and discovers properties and possible combinations. Invention uses these combinations to meet mechanical problems. Can any one doubt who looks into the state of science and its continually improving methods that the conquest of nature will be more rapid in the coming century than it has been in the past century?

But we are challenged by the question: What is the good of annihilating the necessity for bodily toil? Will not man degenerate spiritually as he comes to possess luxury at cheaper and cheaper rates? These material advantages gained by useful invention which create a steady and permanent supply of food, clothing, and shelter, are they not mere sumptuary provisions and do they imply progress in civilisation? To this challenge we reply by pointing out the relation of invention to the communication of intelligence and the diffusion of knowledge by newspaper and book.

In the first place it is obvious that the three classes of employments devoted chiefly to the supply of the physical wants—namely agriculture, manufactures, and commerce—are undergoing change by aid of mechanic invention in such a manner as to bring the laborer everywhere more and more into relation with his fellow men. In other words commerce increases more and more, and becomes a part of all employments. In exchanging goods each gets something that he needed more than what he parted with. But the best result of the exchange is the acquaintance formed between producer and consumer. Each has learned something of the other's ideas, modes of looking at the world and habits of action. Each one's life is enriched by the addition of the knowledge of the life of the other.

Man as a spiritual being has for his problem the exploration of the two worlds—the worlds of nature and man. The problem is too great for the individual and he must avail himself of the work of others. Each man may inventory a small portion of nature different from all others. Each one may live a life different from another's. But the individual gets a very small glimpse of nature by the aid of his own senses. He gets a very small arc of the total of human life in his survey of his own biography.

But by intercommunication each one may extend and supplement his own observations of nature and of the experience of life,—he may avail himself of the aid of the sense-perceptions of others and still more of the aid of the thoughts and reflections of others.

We see at once that man is man because he possesses and uses this means of re-enforcing his individual observations and reflections by those of the race. Man is an individual endowed with the power of absorbing the results of the race. We have with this a definition of civilisation and a standard of measurement by which we may determine the rate of progress. Advancement means that there are improved means realised by which each individual can give to the rest of mankind the results of his living and doing and thinking and at the same time share in the lives, thoughts, and deeds of others.

Looked at in the light of this definition we shall be enabled to claim progress in civilisation on substantial grounds. We shall be able to see something more hopeful in the material progress prom-

ised us in the coming century than the cheap supply of bodily comforts. We see a progressive increase of intercommunication which will enable each individual to command the results of the rational intelligence of all mankind.

Man is first a speaking animal and next a writing animal. Each word that he uses expresses a general meaning. Each word therefore stores up an indefinite amount of experience. All men may pour into it their experience and by it recognise the experience of others. The art of writing at once increases infinitely the possibility of intercommunication because it preserves the experience recorded for persons widely separated in space and far removed in time. It renders every *where* in some sense a *here* and every *when* a *now*. But mechanic invention comes to the aid of speech and the elementary arts of writing by printing with movable types. Printing and gunpowder are two great elementary arts both attributed to the Germanic race—the two wheels of modern civilisation so to speak. But the Anglo-Saxon has added the steam engine and the telegraph. The one makes locomotion possible to an increasing degree and the other makes instantaneous intercommunication with all places possible.

Armed with these instrumentalities our modern civilisation lives in a sort of spiritual border land. It looks across the frontier and is in a constant process of interaction with all other nations. The great instrument of this process is the daily newspaper. Our people are becoming from year to year a travelled people—in a short time the per cent. of the population that has crossed the ocean has doubled. The per cent. that has visited the western border land has quadrupled. But the number of people who live in constant daily interrelation with all mankind by aid of the daily newspaper has increased a hundred fold within a single generation.

The test of a civilisation is its efficiency in re-enforcing the endeavors of each individual so as to give him access to the labors of the world. We are approaching a spiritual civilisation as well as an era of the general distribution of wealth.

W. T. Harris.

RELIGION AND PROGRESS.

INTERPRETED BY THE LIFE AND LAST WORK OF WATHEN MARK WILKS CALL.

ON August 20, 1890, died Wathen Mark Wilks Call, M. A.,—a spirit finely touched to fine issues. The posthumous work before me revives the sense of personal bereavement, but soothes it with the satisfaction of holding another interview with the beloved scholar on themes that through many years engaged our conversation. Here is a casket of golden thoughts cast up from the deep where went down the white-winged ship freighted with such treasures. The general world is unconscious that it is poorer; its ports and marts had little welcome for the dainty wares of this unfamiliar bark. Many an American thinker will through this specimen of the sunken treasures realise the world's loss when it is irreparable; and some who used to hover around the silver sail now vanished, and come ashore laden with its gifts, have wondered that this writer, valued by Mill, George Eliot, and the scholarly English circle, should have courted obscurity rather than fame. He was not indolent, though his published volumes were few: "Lyra Hellenica" (1842), "Reverberations" (1849, second edition 1876), "Golden Histories" (1871). Besides his poems, his contributions in the reviews,—some, like "The Nero Saga" (*Theological Review*, July, 1871), equal to volumes,—would make a substantial and important collection. There is enough thought and learning in his poems and anonymous articles, to have earned fame for an ambitious and pushing author. Why

then did the world get so much less than it ought to have got from this fine and active brain, and why is he so little known?

Many years ago I heard from his own lips the story of his life, which is partly told in the fifty pages that introduce this book, under the title "A Chapter from my Autobiography." It will there be seen that even so late as thirty-six years ago the finest minds and hearts that could not accept creed-dogmas might be almost mortally wounded. From that time he lived and wrote as from a retreat. The actual case, as he told it me, was that his sister, a widow, left him executor of her last will and testament, and the guardian of her children. He was tenderly attached to this sister and to her children. She knew his opinions and his doubts. When he went into the court for confirmation of his trust he was confronted by the post-script of a letter he had written to a supposed friend intimating his "dissent from the creeds of the churches." For this mild and vague heresy he was prevented from acting as the guardian of his sister's children, and fulfilling a sacred trust.

At this time he was a clergyman in the Church of England, which to-day contains many ministers more unorthodox than Mr. Call was when he received this crushing legal blow. This public disgrace of a sensitive scholar, the loss of position, the alienation of friends, added to the grief of seeing his sister's children carried to strangers, parted him from the world. He seemed to have no place in it. Stunned, lacerated, he had no heart to enter on any new profession. But from his retreat came the poems, pathetic but hopeful, entitled "Reverberations," some of which are sung in the liberal chapels of England. Deified egotism and vengeance had brought home to him all their heartlessness: all nature was overcast with this chilling cloud.

Silently bearing his grief, he gave himself to the search for truth in those matters which had been predetermined for him by a thousand subtle influences and associations. Born in 1817, he had graduated at Cambridge,—thé chief poet of its Magazine,—had passed through his Shelleyan phase of scepticism, and entered the church (1845) through one of the many casuistical blind-ways provided in that old minster for those who hesitate at the main portal.

Eleven years were occupied in passing from one to another theoretical cloister or tower of the venerated church before he finally discovered that it had no place for him. Nor was there any church which he could honestly enter. He must be the hermit of his truth. But in that retreat, where the lonely scholar must eat his own heart, the healing hand of a true divinity found him.

Love found him. He married (1857) a lady whose beauty was the expression of her genius. Her father was Dr. Brabant, the friend of Strauss, and founder of the *Westminster Review*. In early life she married C. C. Hennell, author of "An Inquiry into the Origin of Christianity,"—a work which made a deep impression on Theodore Parker, who made it the subject of an article in the old *Dial*. Miss Brabant, versed in ancient and modern languages, did excellent work on the *Westminster Review*, assisted by her friend Marian Evans, afterwards known as "George Eliot." These two ladies, as I have heard, undertook together the translation of Strauss's "Leben Jesu," and were more than half through it when Miss Brabant married. By a contrivance of Mrs. Hennell the name of Marian Evans alone, and to her regret, appeared on the title-page. "George Eliot" thereby gained a reputation helpful to her, though somewhat embarrassing, implying as it did a knowledge of Hebrew and Greek which she did not possess.

Mr. Call's marriage was most happy. The Calls were regarded by their circle of kindred spirits as representing the true ideal union. They had together shared the friendship of the finest intellects, and had moved abreast in intellectual progress, for more than the life of a generation when parted by death.

About seven years ago trouble for the first time entered this almost sacred household. A formidable consumption of one lung set in, threatening Mr. Call's life. I have always believed that this was the long latent bequest of pious cruelties suffered in earlier life. Six years ago the case became hopeless, in its normal course, and the physicians said that the only possibility of recovery lay in a rare and difficult operation, imperilling the few months of life that might remain. The patient and his devoted wife resolved to incur this risk. A tube was inserted through the back; through it the pus

was drained from the ulcerated lung; and little by little the tube was withdrawn, by infinitesimal degrees, as the healing process went on behind it. It was a painful anxious process of many weeks. At this time, when he was kept motionless, I marvelled at his cheerful spirit; though the slightest miscarriage in the wearisome operation might prove fatal, the patient was always serene. One of his physicians, by no means sure of the result, approached him on the subject of religion, and the condition of his soul. Soon after Mr. Call gave me an account of the conversation. In religious matters the doctor had dabbled where Call had dived; it ended in the physician's being compelled to consider the condition of his own soul, and why he should be holding the religion of primitive man along with a science almost able to raise the dead.

The wonderful operation was perfectly successful. Love had healed the young man's broken heart; science had healed the mature man's dying frame. The real miracles that supplant fictitious ones, and fulfil their fables, had been brought home to him. Five happy years were added to his life, during which he wrote the important work to be hereafter considered. On a summer evening last year he passed a pleasant evening at home, ended with a game of cribbage with his wife. During the night he died painlessly of heart disease; a *post mortem* examination proved the lungs quite sound. My friend's body and mind and affections were so combined in organic unity that his very ailments had for me symbolical significance. The unsuspected failure of the heart, for instance, seems a last sequel of the spiritual lesion given him by Dogma as a parting blow: its counterpart is to me visible in the fact that after writing this work he hardly had heart to publish it. The substance of it was completed in 1887; it was entirely finished in 1889; it lay in his library one year. His wife wished him to publish it—so she told me—but he thought the world would not be interested in his views. So deep had bigotry been able to send this man into the vale of Humiliation; and what an intellect was thus discouraged may be partly estimated by those who shall read this book on "Final Causes" published by his widow.

In the last generation many young men, awakened by the song

of Byron and Shelley, started out on a new spiritual pilgrimage. Their path was at first fringed with poetic flowers, and in the distance shone the city called Beautiful. But the path at length became flinty, the city became more dim with progress towards it, and many a pilgrim turned back. Those who pressed on were unique men, so that they came to parting ways, and each had to advance on his individual and lonely path, albeit they were travelling in the same direction. The records of these pilgrimages, wherever found, are chapters in the scriptures of their generation. There is one thing common to them all,—the tenacity with which they have clung to their old faith, and after it to their old church, until beaten off by bigotry or by conscience. "My God, my God, why hast thou forsaken me?" It was no mere cry, but a question reaching far into the ages, and stirring innumerable crucified hearts that have found no voice. Men do not forsake their God; their God forsakes them. They have invested some ancient name with all the pearls of their heart; they have idealised him as wisdom, justice, love, compassion; but no sooner do they think an honest thought, or maintain justice and love against unjust and heartless dogmas, than their Good Shepherd beats such tender lambs with his crook and sets the wolves on them. Yet even then, so long as they can, they keep in the fold, and lift their lacerated hands in prayer. They will even practice some self-deception that they may continue the old formulas after the truth has forsaken these.

Mr. Call's youthful scepticism,—a spell wrought by Byron and Shelley,—being chiefly the expression of others' experiences, and with but little root in his own, carried him no further than the study of philosophy and theology. It was not deep enough to prevent his entering on residence in the University of Cambridge with a view of becoming a clergyman. The struggle being not yet in the arena of his own life and heart, but a combat for his soul between the Humes and the Jeremy Taylors, poetic sentiment easily carried the day. His nature clamored for a realised ideal, and the Church captivated him. "The church, as the embodiment of celestial truth, as the aggregate of noble and beautiful spirits, dead or living, appeared a sublime conception." When a youth falls in love does he

consider whether his beautiful lady's bloom may not be hectic, or hereditary cancer be hovering near the fair breast? Our young scholar weds our Lady of the Litany amid the light of stained windows, and the white-robed choristers. He presently finds that the lovely creature insists on his preaching the doctrine that all who do not yield to her charms are to be burnt at the stake eternally. "Human philosophy had failed to explain to me the mystery of existence; Christian philosophy explained it to be the perpetuation of sin and misery, intensified by omnipotent intervention." Recoiling from this the young clergyman went through years of critical investigation; he mastered the exegesis of the Germans and the French; and at length found himself a simple believer in the religion of Humanity. He, a clergyman of the Church of England!

In the fifty preliminary pages of this posthumous book, comprising "A Chapter from my Autobiography," we have a succinct and useful summary of the crucial criticisms under which biblical authority and supernaturalism have been relegated to professional casuistry. This we will not study here—profoundly interesting as it is—but dwell for a little on the situation in which the scholar found himself.

"While I had thus been working my way through darkness into light—the sober light of sad reality—life had been bringing to all who belonged to me, as well as to myself, varied experiences of pain and sorrow. For their sake I had already done violence to my better nature. Was I now to render the previous sacrifice nugatory? Was the black shadow of my unbelief to enfold those who had already more than their share of the burden of life to sustain? Sympathising friends had early encouraged me to retain my position in the church. A beneficed clergyman, advanced in years, whose studies had ended, like my own, in the abandonment of dogmatic Christianity, had drawn up a statement of the motives which, as he argued, justified him in the retention of his preferment. This statement was forwarded to me. A celebrated and venerable German professor had sent me a message deprecating the abandonment of a post which, he thought, I might continue to occupy without dishonor to myself and with profit to others. I had hitherto deferred

to the judgment of persons whom I regarded as superior to myself in knowledge of life and in ability to determine questions of moral obligation; but the progress of unbelief and enlarged experience decided me, at last, on the adoption of an independent course of thought and action. Taking counsel of my own heart, I resolved to terminate a conflict which had become intolerable. Painful and singular complications preceded, accompanied, and followed my retirement from the English Church."

Here is the "Robert Elsmere" of real life. Since Mr. Call left the Church of England, thirty-five years ago, it has become a largely rationalistic institution. Legal prosecutions of clergymen for heresy have resulted in proving that the evangelical and orthodox have no more right to the Church, in Law, than the liberals. They were usurpers of authority not guaranteed by the constitution, in which there is nothing requiring a clergyman to believe in hell, or the devil, or miracles, or the infallibility of the Bible. Many clergymen are now honestly preaching a simple theistic and humanitarian religion, and when told they ought to leave the Church need only reply, "If you think so you have a right to prosecute me."

The English charlatan who calls himself "Father Ignatius,' who could only make himself ridiculous as a heresy-hunter abroad, seems to have found the Episcopal Church in New York provincial enough to take him seriously. He would never venture to suggest the prosecution of a Broad Churchman at home. His ignorant tribe have too keen a recollection of their severe falls in grappling with Bishop Colenso, and the authors of "Essays and Reviews." We have, however, to deal with America, where the sects, by departure of some of their best brains, seem falling more and more under control of their illiberal constituents, though the consecration of Bishop Phillips Brooks show that reactionists will not have it all their own way. The passage I have quoted above bears upon a moral problem which has already become urgent among us, and in the progress of inquiry must inevitably become of very serious importance to large numbers of ministers and their families. I therefore introduce here a little digression on this subject.

What is the moral duty of a young minister who finds himself

occupying the pulpit of a denomination in whose generally accepted doctrines he has ceased to believe? The New York *Evening Post* recently declared this to be a plain moral question. If—thus it argues—a man has voluntarily entered the ministry of a church, and afterwards forms opinions which, if known, would have prevented his admission, he is morally bound to resign. But the question is much more complex than that. In a majority of cases the minister has not entered "voluntarily,"—within the genuine moral scope of that term. His orthodox parents, abetted by their preacher, have kept light from him, repressed his reason, imprisoned him in Sunday schools and prayer-meetings; he has been accorded no free choice; he has been led as a captive, before his intellect was capable of judgment, artificially terrified about his soul, and the world's danger of damnation, and at length found himself in the pulpit. When the victim finds himself disabused of these fictions, what is his duty? In my belief it would be immoral for him to resign without having first secured a public decision of his church on the issue. His paramount obligations are to the community in which he lives. He is morally bound to preach the truth as he sees it, openly, honestly, plainly. He cannot utter the discredited creeds, prayers, or dogmas. But he has a right,—nay he is bound,—to throw upon the church which has entrapped him the responsibility of repudiating his principles and doctrines. He should say to his church: "You are responsible for the unhappy situation in which I find myself. By your zealous propaganda you frightened or persuaded my parents, my friends, myself, into acceptance of dogmas I now find false. The logical result of taking you seriously was to turn from all worldly occupations, and devote my life to the work of saving mankind from a terrible doom. Now, awakened from the nightmare superinduced by you, I find myself past the opportunities of youth, the time for preparations in other professions irrecoverably lost, and a family dependent on me. The situation concerns not only you and me, but others we have involved. For years I have been laboring with you to try and persuade other youths into the same situation as my own. Something is due to them. I have deceived them and must undeceive them. You say I must be true, but you must be true also. I

have innocently reached a position which enables me to compel you to publish to the world exactly where you stand. I will clearly define my convictions : if you cannot tolerate them in your pulpit the youth will know the precise limits to their freedom they agree to in entering your ministry. If you can tolerate them they will know your liberalism. Therefore I remain here proclaiming my truth, and will not help you to cover the truth up by a resignation relieving you of the duty of proclaiming your position with equal clearness. You have got me here, and if I go now you must turn me out. So shall the cause of truth be advanced."

While this may be affirmed, I think, as a general ethical principle, it is equally true that each case must be judged by itself. The above principle depends on the condition that the ministry has been honestly entered from religious motives, there being no mental reservations at that time. It will be observed that in the case of Mr. Call the consideration entered that he had passed through a phase of Shelleyan scepticism in early youth. This had to be weighed, and perhaps may have had much to do with his determination to retire voluntarily from the ministry. He never concealed his views, however, and it is well known that great efforts are made by older preachers to beat down the scepticism that often arises in the minds of young candidates for the ministry. In such case these unwise advisers assume a large share of responsibility for the event, whether enough to justify the subsequent heretic in compelling a conflict must depend on the minister's conscience. Although, therefore, Mr. Call decided rightly, in accordance with his moral consciousness, it were by no means fair to maintain, with the author of "Robert Elsmere," that ministers who find themselves more liberal than the majority of preachers in their church should surrender to such mere superiority of physical force without testing its legality and laying on it responsibility for its exercise of power. Robert Elsmere should, on moral principles, have remained in the church. By so remaining Colenso, Dean Stanley, Charles Kingsley, Max Müller, Professor Jowett, Matthew Arnold, and others, have revealed the fact that, in their church, thought is not delivered up by law to the despotism of a majority.

The case, however, is somewhat different again where the new opinions adopted by a minister amount to an abandonment of the fundamental doctrines of his church. That may not exonerate him from demanding a formal and public declaration of the church, but this being secured, it must affect his relation to the general world. Should it be proved that he may be legally tolerated, he must then consider whether it is his legitimate means of influence, or whether he would be substituting for his own expression the mask of an extinct faith. The ethical principle above affirmed relates to the first practical step of the minister whose beliefs have changed. The progressive and inquiring mind that continues in a church where it is barely tolerated does so at great peril. Where the swift foot agrees to march with the halt the pace must be that of the halt. Sceptical minds occupying pulpits even of liberal denominations are likely to discover, should such engagements end, that they have been unconsciously arresting their own development in finding a conciliatory *modus vivendi* with the reactionary brethren. There is, indeed, a class of fine intellects, like the great English Broad Churchmen already named, whose comparatively advanced views are the result of larger learning ; they have discovered that two and two are four, and gathered courage to deny that the amount is five. These constitute the right leaven by which great organisations are raised to higher standards of knowledge and veracity. But there are original and philosophic inquirers whose particular power were only buried in such organisations, without elevating them. These are due to the corps of pioneers in the direction whither the organisations are advancing. Their task is original research. These cannot wisely wear the uniform of any religious or political party.

Mr. Call was such an original mind, and after he had left the English church his course was to the maturity represented in this ripe book on "Final Causes." But had he not passed eleven of his best years in the church, out of his true habitat, we should have more fruit of this fine flavor. It is therefore a voice from his experience that here reaches us, as from his grave :

"Scepticism has been vigorously advancing in the nation—I might say, in Europe. And not only has it extended its sphere, but it includes within that sphere

some of the loftiest and profoundest intellects of the age—men renowned for vast and exact erudition, for scientific research or critical acumen. Philosophers, poets, historians, novelists, openly or silently disavow Christianity. In palaces, in lordly mansions, in college halls, in secluded homesteads, and here and there in rectory or vicarage, scepticism, if it has not a bold and fearless utterance, at least expresses itself in a guarded whisper. It becomes doubly a duty, then, when notwithstanding the general diffusion of avowed or latent unbelief, we trace everywhere the presence of a conservatism that conceals and hesitates and trembles at the doubts which it cannot suppress, that individual dissentients should candidly disclose their theological divergences. Christianity, indeed, which has had its triumphs in the past, will long conserve a portion of its power, and continue to furnish guidance not only for the unreasoning multitude, but for thousands of excellent men and women who cannot abandon the old religious ideal. But there is no final arrest for the intellectual progress of mankind."

We now turn to Mr. Call's work on "Final Causes." In an introductory chapter of eight pages he compresses the history of the doctrine of Design in nature from Anaxagoras, B. C. 500, to our own time, stating its modifications, criticisms, denials. In the second chapter a brief account is given of "Natural Theology," whose modern form is found to rest fundamentally on Newton's generalisation, that a body at rest continues at rest unless acted upon by some external force; and on the geometrical order of planetary revolutions. Starting anew from this point the human mind has discovered in the varied realms of nature apparent evidences of a supersensuous Intelligence. Kant, however, is brought to criticise Newton. "Kant notes with delight that the 'harmonical relations which excite the feelings in a more sublime manner than even the contingent beauties of nature originate in the properties of space'; and this inevitable congruity he refers ultimately, indeed, to Divine Wisdom, but directly to a common dependence on a single sovereign ground, to a unity of possibilities which it is no more difficult to conceive as self-existent than it is to conceive an Intelligent Cause as self-existent." Matter is not, then, naturally inert, but an aggregate of forms and forces, and nature a self-adjusting, self-evolving power. In a chapter on "Order and General Adaptation" it is shown that nature contains vast realms of Disorder; and alleged "special adaptations" are shown too as often as otherwise for cruelty and agony. "With

what feelings," asks G. H. Lewes, "can we contemplate the destruction of such an organism as that of man for the sake of some microscopic animal made to live upon it? With what feelings can we think of a human being sacrificed to the growth of cancer-cells? What is the contrivance and benevolence here?" Particular illustrations of design on which teleologists have depended,—the eye, the bee's cell, the bird's wing—are examined with critical and scientific care, and imperfections, gratuitous and cruel if ascribed to omnipotent wisdom, found everywhere. "To assert that the Creator of the world is infinitely powerful and infinitely wise were to deny that he is infinitely good."

To escape the dilemma just stated, some theists postulate a "limited or constitutional deity." Dr. Martineau's idea of a "material datum objective to God" is an effort to relieve the deity of responsibility for the evils of nature, but Mr. Call declares the selection of "power" as the limited attribute is arbitrary. We have, he thinks, no more logical right to limit the deity's power than his intelligence, or his benevolence. (This is doubtful, however, and requires more consideration than is here given it.) "The Evolutionary God" is next considered, and disproved by the uselessness and unfitness of some structures in various organisations, the often injurious character of others, (e. g. the intestinal canal called the vermiform process,) while the moral sense is still offended by the genral predatory method of natural selection.

The validity of the Design argument disposed of, Mr. Call leaves to the theist whatever evidences of a deity he may find in his ideals, emotions, aspirations, intuitions. He points out that the Designer thus disproved has never been able to satisfy the intellect or heart, the like being true of the "Unknowable." The sole sacred ideal left us is that of humanity; not of the whole race but of the purer, nobler constituents of it.

As Humanity will be the sole Ideal Object to which dutiful obligation and exalted sentiment will be referred, so the world of Humanity will be the world revealed, not by divine inspiration or metaphysical intuition, but by Positive Science The shadowy abstractions of the speculative rationalist, the fanciful conceptions of the theologian, will gradually pass away. To the Semitic explanation of the

world and of man will succeed that of Laplace and Darwin. The great and majestic truths of the stellar universe, the mysteries of life, of light, of heat, of sound; the wonders of natural history, the magic of geologic lore, the epic of man's progression in time; the exaltation, the solace, the delight which flow from poetry, music, painting, sculpture; the interest in the arts, industrial no less than æsthetic; in the fellowship of work which ameliorates the common lot; in friendships of man and woman, short of passionate love, and in the happier profounder affection of wife and husband; in all home charities and patriotic activities, and in the identification of personal 'feelings with the entire life of the human race';—all these incidents of thought and varieties of emotion and action will possess the intellect and fill the heart of future generations, in a mode and degree which we can now only imperfectly realise, and which, in the end, will leave men but little reason to regret that the raptures of saint or prophet, or the splendours of ancient theocracy, or the power and glory of the Mediæval Church, or the imposing premise of Hellenic or of Teutonic speculation, are as the dreams of a night that has passed forever away."

Have we, in this prophetic conclusion, the afterglow of a faith sunk beneath the horizon? Why should we suppose that such beautiful things will come to pass in the future? Such prophecies have hitherto been inspired by belief in an overruling and omnipotent Love. But we are now brought by science and philosophy to the misgiving of Solomon, "We are born at all adventure." Things, the sceptic may say, will grow better if man compels them so, otherwise they can as easily grow worse.

It appears to me that in the old dogma of Jehovah's curse on the world and its redemption by Jesus there is buried, as in a sarcophagus, a skeleton of human nature, and of moral history, resembling the man of to-day, and the history we are making. There was an appeal of the human heart from Jehovah to Jesus,—from the cursing to the saving deity. The terrible arraignments of nature written by some of the greatest men since Darwin's discovery have not found any one to answer them. The severest indictment of the world, perhaps, is that by the late Cardinal Newman, who declares, "Either there is no Creator, or this living society of men is in a true sense discarded from his presence. . . . *Since* there is a God, the human race is implicated in some terrible aboriginal calamity." From a deity who having created his own materials, built up a creation liable

to such calamity, mankind are once more appealing. The ancient case was Jesus *vs.* Jehovah; the present case is Humanity *vs.* the Creator of Nature. This rebellion of the moral sentiment and of compassionateness is not intellectually conscious; it goes on, and for a long time must go on, with ceremonial respect to the Final Cause of all the evils humanity tries to heal; but it appears to me certain that the heart and enthusiasm which once went out to a personal God are again turning to a crucified humanity. The humanitarian movements of our time have arisen simultaneously with the overwhelming evidences of nature's cruelty and imperfections revealed by Science. The earlier deists appealed from biblical superstitions and ecclesiastical cruelties to the God visible in the order and beauty of the universe. With the existence of evil in external nature they never grappled. Bishop Butler's "Analogy" first stated the problem. He answered deistic objections to the inhumanities of the Bible by pointing out the like in nature. Instead of answering the deists he set them on a new departure which has ended in results summed up in Mr. Call's book. The omnipotent creator of nature is following the biblical Jehovah into extinction. But the instincts and aspirations of the human heart and mind remain the same; the religious sentiment remains. The stream that is dammed up in one direction or another does not lose any force thereby; it streams into other channels if it can find such, or floods field and village if it finds none. It will beat earthward as strongly as it once beat heavenward; it will, if channels be not provided, carry away institutions as it has carried away gods and goddesses.

It has become therefore of great importance to recognise if possible the lines of least resistance along the mighty stream of religious enthusiasm, and provide that its energies shall not be destructive but conservative of human welfare. At present the most conservative force in the earth is ignorance: were the suffering masses of the world to discover, suddenly and universally, that the old creeds are fictions, their evils not providential, their heavenly hopes vain, every nation would be filled with convulsions. Fortunately the sun is not shot up into the heavens. But enlightenment progresses rapidly, and we have begun none too soon turning the rising flood of

light and fire into the human channels long obstructed by sanctified inhumanities.

Mr. Call's little book, which I hope will find publication and wide circulation in America, sums up succinctly and cogently the present religious situation, and the steps by which it has been reached. It remains for us all to sweep the new horizon with eye and telescope, to compare our observations and to catch the first ray of the star that shall point wise men to the new incarnation. To my own mind this book is one of the many signs and promises that the divine will be steadily merged into and identified with the human. Not with humanity as an objective and historical entity, as Comte believed, but with the distinctive characteristics of humanity, the supreme qualities of reason and love: this will become the ideal of the reasoners and the lovers; it will then become the creating Word, instructing all; it will finally be made flesh and dwell among us, and all shall behold in it the glory of the kingdom of Man.

MONCURE D. CONWAY.

FACTS AND MENTAL SYMBOLS.

I PERCEIVE from Dr. Carus's answer to my letter in No. 3 Vol. I of *The Monist*, that amid all the agreement of our mutual endeavors a material difference of opinion exists between us on an important question of special character. As I was not successful in rendering my thought clear on this point, I shall endeavor on the present occasion to explain *what* it was that forced me to abandon my old position (1863), which is very near to that of Dr. Carus, and to assume a new one. The supposition that our difference of opinion is merely apparent and can be adjusted by a precise agreement as to the terms employed is a very natural one in philosophical discussions. It is hardly tenable, though, when the divergent views in question arise *subsequently* to one another in the *same* person.

I must state, in starting, that I pursued in my youth physical *and* philosophical studies, particularly psychology, with equal ardor. There was hardly the question at that time of an experimental psychology, of a relation of psychological to physiological research. No more so did physics at that day think of a psychological analysis of the notions it was constantly employing. How the notions of "body," "matter," "atom," etc., were come by, was not investigated. Objects were given of which physicists never questioned the inviolability and with which they unconcernedly pursued their labors.

The fields of physical and psychological research thus stood *unconciliated* the one by the side of the other, each having its own particular concepts, methods, and theories. No one questioned, in-

deed, that the two departments were connected in some way. *The way*, however, appeared an insoluble riddle; as it yet appears to Dubois-Reymond.

Now although this condition of things was not such as to satisfy my mind, it was nevertheless natural that as a student I should seek to acquire tentatively the prevailing views of both provinces and put them into consistent connection with one another.

I thus formed provisorily the view that Nature has two *sides*—a physical and a psychological side. If psychical life is to be harmonised at all with the theories of physics we are obliged, I thought, to conceive of the atoms as *feeling* (ensouled). The various dynamic phenomena of the atoms would then represent the physical processes, while the internal states *connected therewith* would be the phenomena of psychic life. If we accept in faith and seriousness the atomistic speculations of the physicists and of the early psychologists (on the unity of the soul), I still see hardly any other course to arrive at a half-way supportable monistic conception.

It is unnecessary to set forth at length here what a prominent place the artificial scaffolding we employ in the construction of our knowledge assumes in these monadic theories as contradistinguished from the facts that deserve knowledge, and how poorly such theories satisfy in the long run a vigorous mind. As a fact, employment with this cumbrous artifice was in my case the means that effected very soon the appearance of my better conviction, already latently present.*

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* A Greek philosopher to whom change of spatial configuration, pressure, and percussion were probably the only natural processes of which he had any intimate knowledge, thought out the atomistic theory. This theory we retain to-day, though it be in a modified form. And in fact natural phenomena really do exist that act *as if* the pressure and impact of very small particles were involved in their production (the dynamical theory of gases), phenomena that admit therefore by this conception of being more clearly viewed. However, this conception, like that of caloric, possesses value only in certain fields. We know to-day that pressure and impact are by no means simpler phenomena than are for example the phenomena of gravitation. The contention that in physics everything can be reduced to the motion of smallest particles is, taken at its best, a more than improper draft on the future. Utterances of this kind afford no assistance to the solution of burning special questions, but only confound, and have about the same explanatory value as the utterances of the late physical philosophy of Oken which prescribe for example with the

In the further progress of my physical work I soon discovered that it was very necessary *sharply to distinguish* between what we *see* and what we mentally *supply*. When, for example, I imagine heat as a substance (a fluid) that passes from one body into another, I follow with ease the phenomena of conduction and compensation. This idea led Black, who established it, to the discovery of specific heat, of the latent heat of fusion and vaporisation, and so forth. *This same* idea of a constant quantity of heat-substance *prevented* on the other hand Black's successors from using their eyes. They no longer mark the fact which every savage knows, that heat is *produced* by friction. By the help of his undulatory theory Huygens follows with ease the phenomena of the reflexion and refraction of light. The same theory *prevents* him, for he thinks solely of the longitudinal waves with which he was familiar, from marking the fact of polarisation which he himself discovered, but which Newton on the other hand, undisturbed by theories, perceives at once. The conception of fluids acting at a distance on conductors charged with electricity facilitates our view of the behavior of the objects charged, but it *stood in the way of* the discovery of the specific inductive capacity, which was reserved for the eye of Faraday undimmed by any traditional theories.

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greatest ease the course of the creation of the world by a division of zero-quantities into $+a$ and $-a$ ($o = +a - a$).

The motion of a *single* body as a totality does indeed appear simpler at first glance than any other process, and this is the justification of attempts at a *physical* monadic theory. The thoughts of a *single* man are connected together; the thoughts of two different men are not. How can the processes of the different parts of the brain of one man be connected? In order to make the connection very intimate, we collect everything which requires to be psychically connected in *a single* point, although the connection is not explained by this procedure. Thus the psychological monadic theory is created on the basis of a motive and of an illusion similar to that on which the physical rests.

Let us assume for a moment the proposition in the text; viz., that the atoms are endowed with feeling. By the space coördinates $x, y, z, x', y', z' \ldots$ of the atoms are determined *in the atoms* internal conditions $\alpha, \beta, \gamma, \alpha', \beta', \gamma' \ldots$, and *vice versa*. For we feel by our senses our physical environment, and our physical invasions of our environment are conditioned by our sensations. The idea is then at hand, $\alpha\ \beta\ \gamma \ldots$ alone being directly given, to set up by the elimination of $x, y, z \ldots$ equations directly between $\alpha\ \beta\ \gamma, \alpha'\ \beta'\ \gamma' \ldots$. This latter point of view would be very near to my present one, aside from the fact that the latter wholly rejects metaphysical considerations.

Valuable therefore as the conceptions may be which we mentally (theoretically) supply in our pursuit of facts, bringing to bear, as they do, older, richer, more general, and more familar experiences on facts that stand alone, thus affording us a broader field of view, nevertheless, the same conceptions may, as classical examples and our own experience demonstrate, lead us astray. For a theory, indeed, always puts in the place of a fact something *different*, something more simple, which is qualified to represent it in some *certain* aspect, but for the very reason that it is different does *not* represent it in other aspects. When in the place of *light* Huygens mentally put the familiar phenomenon of *sound*, light itself appeared to him as a thing that he knew, but with respect to polarisation, which sound-waves lack, as a thing with which he was doubly unacquainted. Our theories are abstractions, which, while they place in relief that which is important for *certain fixed* cases, neglect almost necessarily, or even disguise, what is important for other cases. The law of refraction looks upon rays of light as homogeneous straight lines, and that is sufficient for the comprehension of the geometrical aspect of the matter. But the propositions that relate to refraction will never lead us to the fact that the rays of light are periodical, that they interfere. Just the contrary, the favorite and familiar conception of a ray as a smooth straight line will rather render this discovery difficult.

Only in rare cases will the resemblance between a fact and its theoretical conception extend *further* than we ourselves postulate. Then the theoretical conception may lead to the discovery of *new* facts, of which conical refraction, circular polarisation, and Hertz's electric waves furnish examples that stand in opposition to those given above. But as a general rule we have every reason to distinguish sharply between our theoretical conceptions of phenomena and that which we observe. The former must be regarded merely as auxiliary instruments that have been created for a *definite* purpose and which possess permanent value only with respect to that purpose. No one will seriously imagine for a moment that a real circle with angles and sines actually performs functions in the refraction of light. Every one, on the contrary, regards the formula

$\sin\alpha/\sin\beta = n$ as a kind of geometrical model that *imitates in form* the refraction of light and *takes its place* in our mind. In this sense, I take it, all the theoretical conceptions of physics—caloric, electricity, light-waves, molecules, atoms, and energy—must be regarded as mere helps or expedients to facilitate our viewing things. Even within the domain of physics itself the greatest care must be exercised in transferring theories from one department to another, and above all more instruction is not to be expected from a theory than from the facts themselves.

But instances were not lacking that demonstrated to me, how much greater the confusion was which was produced by the direct transference of theories, methods, and inquiries that were legitimate in physics, into the field of psychology.

Allow me to illustrate this by a few examples.

A physicist observes an image on the retina of an excised eye, notices that it is turned upside down with respect to the objects imaged, and puts to himself very naturally the question, How does a luminous point situated *at the top* come to be reflected on the retina *at the bottom?* He answers this question by the aid of dioptrical studies. If, now, this question, which is perfectly legitimate in the province of physics, be transferred to the domain of psychology, only obscurity will be produced. The question why we see the *inverted* retina-image *upright*, has no meaning as a psychological problem. The light-sensations of the separate spots of the retina are connected with sensations of locality from the very beginning, and we *name* the places that correspond to the parts down, *up*. Such a question cannot present itself to the perceiving subject.

It is the same with the well-known theory of projection. The problem of the *physicist* is, to seek the luminous object-point of a point imaged on the retina of the eye in the backward prolonged ray passing through the point of intersection of the eye. For the perceiving subject this *problem* does not exist, as the light-sensations of the retinal spots are connected from the beginning with determinate space-sensations. The entire theory of the psychological origin of the "external" world by the projection of sensations outwards is founded in my opinion on a mistaken transference of a

physically formulated inquiry into the province of *psychology*. Our sensations of sight and touch are bound up with, are connected with, various *different* sensations of space, that is to say these sensations have an existence *by the side of* one another or *outside of* one another, exist in other words in a *spatial* field, in which our body fills but a part. That table is thus self-evidently *outside of* my body. A projection-problem does not present itself, is neither consciously nor unconsciously solved.

A physicist (Mariotte) makes the discovery that a certain spot on the retina is blind. He is accustomed to associating with every spatial point an imaged point, and with every imaged point a sensation. Hence the question arises, What do we see at the points that correspond to the blind spots, and how is the gap in the image filled out? If the unfounded influence of the physicist's method of procedure on the discussion of psychological questions be excluded, it will be found that no problem exists at all here. We see *nothing* at the blind spots, the gap in the image is *not* filled out. The gap, moreover, is not felt, for the reason that a defect of light-sensation at a spot blind from the beginning can no more be perceived as a gap in the image than the blindness say of the skin of the back can be so perceived.

I have chosen intentionally simple and obvious examples, such as render it clear what unnecessary confusion is caused by the careless transference of a conception or mode of thought which is valid and serviceable in one domain, into another.

In the work of a celebrated German ethnographer I read recently the following sentence: "This tribe of people deeply degraded itself by the practise of cannibalism." By its side lay the book of an English inquirer who deals with the same subject. The latter simply puts the *question why* certain South-Sea islanders eat human beings, finds out in the course of his inquiries that our own ancestors also were once cannibals, and comes to understand the position the Hindus take in the matter—a point of view that occurred once to my five-year-old boy who while eating a piece of meat stopped suddenly shocked and cried out, "*We* are cannibals to the animals!" "Thou shalt not eat human beings" is a very beautiful

maxim; but in the mouth of the ethnographer it sullies the calm and noble lustre of unprepossession by which we so gladly discover the true inquirer. But a step further and we will say, "Man *must* not be descended from monkeys," "The earth *shall* not rotate," "Matter *ought* not everywhere to fill space," "Energy *must* be constant," and so on. I believe that our procedure differs from that just characterised only in degree and not in kind, when we transfer views reached in the province of physics with the dictum of sovereign validity into the domain of psychology, where they should be tested anew with respect to their serviceability. In such cases we are subject to dogma, if not to that which is forced upon us by a power from without like our scholastic forefathers, yet to that which we have made ourselves. And what result of research is there that could not become a dogma by long habit of use, since the very skill which we have acquired in familiar intellectual situations, deprives us of the freshness and unprepossession which are so requisite in a new situation.

Now that I have set forth in general outlines the position I take, I may be able perhaps to establish my opposition to the *dualism of feeling and motion.* This dualism is to my mind an artificial and an unnecessary one. The way it has arisen is analogous to that in which the imaginary solutions of certain mathematical problems have arisen—by the improper formulation of the questions involved.

In the investigation of purely physical processes we generally employ notions so abstract that as a rule we only think cursorily or not at all of the sensations that lie at and constitute their foundation. For example, when I establish the fact that an electric current of 1 Ampère develops $10\frac{1}{2}$ cubic centimetres oxyhydrogen gas at 0° C. and 760 mm mercury pressure in a minute, I am easily disposed to attribute to the objects defined a reality wholly independent of my sensations. But I am obliged in order to arrive at what I have determined to conduct the current through a circular wire having a definite measured radius, so that the current, the intensity of terrestrial magnetism being given, shall turn the magnetic needle at its centre a certain angular distance out of the meridian. The intensity of terrestrial magnetism must have been disclosed by a definite

observed period of vibration of a magnetic needle of measured dimensions, known weight, and so forth. The determination of the oxyhydrogen gas is no less intricate. The whole statement, so simple in its appearance, is based upon an almost unending series of simple sensory observations (sensations), particularly so when the observations are added that guarantee the adjustment of the apparatus, which may have been performed in part long before the actual experiment. Now it may easily happen to the physicist who does not study the psychology of his operations, that he does not (to reverse a well-known saying) see the trees for the woods, and that he slurs over the sensory elements at the foundation of his work. Now I maintain, that every physical notion is nothing more than a definite connection of the sensory *elements* which I denote by *A B C* . . ., and that every physical fact rests therefore on such a connection. These *elements*—elements in the sense that no further resolution has for the present been effected of them—are the most ultimate building stones of the physical world that we have as yet been able to seize.

Physiological research also may have a purely physical character. I can follow the course of a physical process as it propagates itself through a sensitive nerve to the spinal column and brain of an animal and returns by various paths to the muscles of the animal, whose contraction produces further events in the environment of the animal. I need not think, in so doing, of any feeling on the part of the animal; what I investigate is a purely physical object. Very much is lacking, it is true, to our complete comprehension of the details of this process, and the assurance that it is all motion can neither console me nor deceive me with respect to my ignorance.

Long before there was any scientific physiology people perceived that the behavior of an animal confronted by physical influences is much better viewed, that is understood, by attributing to the animal *sensations* like our own. To that which I see, to *my* sensations, I have to *supply mentally* the sensations of the *animal*, which are not to be found in the province of my own sensation. This contrariety appears still more abrupt to the scientific inquirer who is investigating a nervous process by the aid of colorless abstract notions, and is required for example to add mentally to that process

the sensation green. This last can actually appear as something entirely novel, and we can ask ourselves how it is that this miraculous thing is produced from chemical processes, electrical currents, and the like.*

Psychological analysis has taught us that this surprise is unjustified, since the physicist deals with sensations in everything on which he employs himself. This analysis is also able to render it clear to us that the mental addition by analogy of sensations and complexes of sensations which at the time being are not present in the field of sense or cannot even come into it, is also daily practised by the physicist, as when for example he imagines the moon an inert heavy mass although he cannot touch the moon but only see it. The totally strange character of the intellectual situation above described is therefore an illusion.

The illusion disappears when I make observations (psychologically) on my own person which are limited to the sensory sphere. Before me lies the leaf of a plant. The green (A) of the leaf is united with a certain optical sensation of space (B) and sensation of touch (C), with the visibility of the sun or the lamp (D). If the yellow (E) of a sodium flame takes the place of the sun, the green (A) will pass into brown (F). If the chlorophyl granules be removed,—an operation representable like the preceding one by elements,—the green (A) will pass into white (G). All these observations are *physical* observations. But the green (A) is also united with a certain process on my retina. There is nothing to prevent me in

* The following is a legitimate question: To what kind of nervous processes is the sensation green to be mentally added. Such questions can be solved only by special inquiry, and not by a reference in a general way to motion and electric currents. How disadvantageous our remaining satisfied with such general conceptions is, can be seen from the fact that inquirers have been repeatedly on the brink of abandoning the *specific energies*, one of the greatest acquisitions we have made, simply because they were unable to discover any difference in the currents of different sensory nerves. I was impelled as early as 1863 in my lectures on psychophysics to call attention to the fact that the *most diverse kinds* of nervous processes can conceal themselves in a current. Current is an abstraction and places in relief but one feature of the process—the passage of energy though a transverse section. A current in diluted sulphuric acid is something entirely different from a current in copper. We must therefore also expect that a current in the acoustic nerve is something entirely different from a current in the optic nerve.

principle from physically investigating this process on my own eye in exactly the same manner as in the cases previously set forth, and from reducing it to its elements $X\ Y\ Z$. . . . If this were not possible in the case of my own eye, it might be accomplished with that of another, and the gap filled out by analogy exactly as in physical investigations. Now in its dependence upon $B\ C\ D$ . . ., A is a *physical element*, in its dependence on $X\ Y\ Z$ . . . it is a *sensation*. The green (A) however is not altered at all *in itself*, whether we direct our attention to the one or to the other form of dependence. *I see, therefore, no opposition of physical and psychical, no duality, but simply identity.* In the sensory sphere of my consciousness everything is at once physical and psychical.

The obscurity of this intellectual situation has arisen according to my conviction solely from the transference of a physical prepossession into the domain of psychology. The physicist says: I find everywhere bodies and the motions of bodies only, no sensations; sensation therefore must be something *entirely different* from the physical objects I deal with. The psychologist accepts the second portion of this declaration. To him, it is true, sensation is *given*, but there corresponds to it a mysterious physical something which conformably to physical prepossession must be *different* from sensation. But what is it that is the really mysterious thing? Is it the Physis or the Psyche? or is it perhaps *both?* It would almost appear so, as it is now the one and now the other that is intangible. Or does the whole reasoning involved rest on a fallacious circle?

I believe that the latter is the case. For me the elements designated by $A\ B\ C$ . . . are immediately and indubitably given, and for me they can never afterwards be volatilised away by any considerations which are after all based in every case on their existence.*

*It is the transitoriness of sense-perceptions that so easily leads us to regard them as mere appearances as contrasted with permanent bodies. I have repeatedly pointed out that unconditioned permanent states do not exist in nature, that permanences of connection only exist. A body is for me the same complex of sight-and-touch-sensations every time that it is placed in the same circumstances of illumination, position in space, temperature, and so forth. The supposed constancy of the body is the constancy of the union of A, B, C . . . or the constancy of the *equation* $f(A, B, C \ldots) = 0$.

To the department of special research having for its subject the sensory, physical, and psychical province which is not made superfluous by this general orientation and which cannot be forestalled, the relations of $A\ B\ C\ \ldots$ only remain to be ascertained. This may be expressed symbolically by saying that it is the purpose and end of special research to find equations of the form $f(A, B, C, \ldots) = 0$.

I hope with this to have designated the point in which I am in opposition to Dr. Carus, with whom I agree so much in other respects. I am obliged, notwithstanding the latter fact, to regard this point as essential, inasmuch as my whole mode of thinking and direction of inquiry have been changed by the view it involves, and because, moreover, I do not believe that the difference in question can be dissipated by any verbal explanations however exact.

This whole train of reasoning has for me simply the significance of negative orientation for the avoidance of pseudo-problems. I restrict myself, moreover intentionally here, to the question of sense-perceptions, for the reason that at the start exact special research will find here alone a safe basis of operations.

ERNST MACH.

PROFESSOR CLIFFORD ON THE SOUL IN NATURE.

NO one can read Clifford's Lectures and Essays, without feeling that, if their author is less known and valued as an original thinker than as a master of mathematical analysis, it is only because having turned the force of his genius onto mathematics first he had time to complete some work in that direction, whereas his premature death in 1879 only allowed him to give us an earnest of the philosophical work which he had it in him to perform.

The short biography which Prof. F. Pollock contributed to the first edition of his lectures and essays gives an interesting sketch of the phases of opinion through which Clifford passed. It appears that before he took his degree in 1867 and for a little time after he was a high churchman; but, says Pollock, "there was an intellectual and speculative activity about his belief which made it impossible that he should remain permanently at that stage." "He never slackened in the pursuit of scientific knowledge and ideas," and conscious of a hiatus between orthodox views and some of the results of science he yet held that religious beliefs are outside the region of scientific proof and that there is a special theological faculty or insight, analogous to the scientific, poetic, and artistic faculties, the persons in whom this genius is exceptionally developed being the founders of new religions and religious orders. This is not unlike the solution of religious doubts which Hume playfully suggested and which John Henry Newman has seriously adopted, namely that "divinity, or theology, has a foundation in *reason* so far as it is sup-

ported by experience. But its best and most solid foundation is *faith* and divine revelation." "When or how," continues his biographer, "Clifford first came to a clear perception that this position of quasi-scientific Catholicism was untenable I do not exactly know; but I know that the discovery cost him an intellectual and moral struggle, of which traces may be found here and there in his essays. Most readers of these essays would consider that Clifford is very unfair to the Christian beliefs which he had abandoned and beyond doubt he felt a certain grudge against them for having so long duped him."* The theories of Mr. Darwin and Herbert Spencer took the place in Clifford's mind of the old fashioned creed; Natural selection was to unriddle the universe, to yield a new system of ethics and education. We read that Clifford had an extraordinary power of taking up a theory provisionally, of throwing himself into it, accepting it, applying it, and of rejecting it in case it was not satisfactory; and this may account perhaps for his somewhat dogmatic assertion in many cases of crude views. There is one characteristic of Clifford however which all may emulate, and that is the candor and fearlessness of his thinking and speaking. Let me quote a few words from one of the best and most stirring of these essays:

"If I let myself believe anything on insufficient evidence, there may be no great harm done by the mere belief; it may be true after all, or I may never have occasion to exhibit it in outward acts. But I cannot help doing this great wrong towards man, that I make myself credulous. The danger to society is not merely that it should believe wrong things, though that is great enough; but that it should become credulous, and lose the habit of testing things and inquiring into them; for then it must sink back into savagery. . . . . If a man, holding a belief which he was taught in childhood or persuaded of afterwards, keeps down and pushes away any doubts which arise about it in his mind, purposely avoids the reading of books and the company of men that call in question or discuss it, and regards as impious those questions which cannot easily be asked without disturbing it—the life of that man is one long sin against mankind."

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* On the whole, however, it is probable that in dealing such hard blows as he did at priests and dogmas he was actuated by sheer love of truth, and those who knew him best assure us that he was entirely free from bitterness and from the vanity which sets some people upon beating their grandmother in public by way of showing that they are grown up in their opinions.

The essay on the nature of things in themselves marks the furthest limit at which Clifford's speculation arrived. In it Clifford begins by discarding the ordinary distinction between reality and ideas, eternal object and eternal subject, of feeling and thing. The distinction is really between two orders of feeling; there is the subjective or inner order, in which sorrow succeeds the hearing of bad news, and the objective or outward in which the feeling of letting go is followed by sight of falling object. It is with the latter order that physical science concerns itself, and all the inferences of natural science are inferences of my real or possible feeling. Since an object is a set of changes *in* my consciousness and not anything out of it, is just my feeling real or possible and therefore part of me, it might seem as if we were shut up in ourselves and excluded from participation in any other reality. So we should be, says Clifford, if we made no other inferences beside those of physical science; but when I come to the conclusion that *you* are conscious and that you have objects in your consciousness similar to those in mine, I am not inferring any actual or possible feelings of my own, but *your* feelings, which are not and can never be objects in my consciousness. To feelings and consciousness thus inferred to exist in another, Clifford gives the name of *eject*, because in the very act of inference they are *thrown out* of my consciousness, recognised as outside of it, as *not* being a part of me. "The existence of my conception of you in my consciousness carries with it a belief in the existence of you outside of my consciousness. . . . . How this inference is justified, how consciousness can testify to the existence of anything outside of itself I do not pretend to say; I need not untie a knot which the world has cut for me long ago." (Vol. II, p. 73.)

Thus, *objects* in the sense of things presented in *my* consciousness, my phenomena, are not the sole or chief reality; ejects are equally real and my conviction of your existence as a conscious being like myself is coeval and of equal weight with my belief in my own conscious existence. You and your feelings are strictly speaking the only things which are real outside of myself and my consciousness. For though my objects or phenomena are external to my body they are not outside my consciousness, but part and parcel

thereof. Nay, more than this an individual object, i. e. an object which is mine and mine only, never exists at all, according to Clifford, in the mind of man; for with each object as it exists in my mind is bound up the thought of similar objects existing in other men's minds. All the objects in fact of which we are ever conscious are objects of consciousness in general, are in Clifford's phrase social objects. "A fixed habit causes an object as it is found in my mind to be formed as a social object and insensibly embodies in it a reference to the minds of other men." This belief in ejects is moreover the root of all language and all morals :—of language, because any sound which, becoming a sign to my neighbor, becomes thereby a mark to myself, must by the nature of the case be a mark of the social object and not of the individual object: of morals, because the "first great commandment, evolved in the light of day by healthy processes wherever men have lived together, is, 'Put yourself in his place.'"

So far there is nothing to distinguish Clifford's theory from ordinary Idealism, which denies that the universe is real except as a phenomenon or appearance before a Self conscious thereof. The future course of Clifford's argument turns upon two assumptions. One of these, borrowed from the current physiology of the brain, is this: that the changes in my consciousness—ejective facts he calls them—run parallel with the changes in my brain, which are objective facts. The parallelism between them is one of complexity, an analogy of structure. The complex ejective facts are the same sort of complication of simple ejects as the complex motions of the brain are of simple molecular movements. Clifford illustrates the points from the relation of speech to writing, the sentence spoken is the same function of the elementary sounds as the same sentence written is of the corresponding letters. In like manner the complex human mind is the same function of simple feelings as the brain is of primary atoms.

The other assumption is based upon the current doctrine of evolution. Our bodies have been evolved step by step out of inorganic matter, and we have before our eyes a line of organisms connecting man with the simplest atom of matter. In this series there

is no hiatus between one form and another, no breach of morphological continuity, but one species arises by insensible gradation out of its predecessors. Now in the case of organisms of a certain complexity we cannot help inferring consciousness, and as we go back along the line we not only see the complexity of the organism and of its nervous system insensibly diminishing, but for the first part of our course we have reason to think that the complexity of consciousness insensibly diminishes also.* The conclusion is forced upon us that nature is animate from top to bottom and that the humblest atom has an elementary feeling or eject of its own as simple in comparison with the complex intelligence of man as the atom is itself simple in comparison with his very complex brain. Unless we admit this we are in a dilemma. The ejective facts which we cannot help inferring in the case of all animals must extend further down through vegetables to inorganic phenomena, or else there must be a point at which we could say: here the object begins to have an inner or ejective fact corresponding to it as my mind corresponds to my body. But the series of objective forms presents no sudden break anywhere, not even between animals and vegetables, such as to warrant our supposing that ejective facts extend thus far down in the series and no further.

Clifford is not quite as explicit about the nature of the elementary ejects, which answer to moving molecules, as we should like him to be. Of one thing however he is quite certain; they are elementary feelings which yet are neither modifications of a consciousness nor yet imply a consciousness in which alone they can exist. Every feeling may be part of a consciousness, but it need not be so. Consciousness is only a derivative and secondary result, following on the arrangement of feeling in a particular way and it is evolved at a very late period in the history of the world. In itself a feeling is an absolute *Ding-an-sich*, whose existence is not relative to anything else. *Sentitur* is all that can be said of it.

Thus strictly speaking it is not *consciousness* which extends throughout the series of objective forms from man down to the mole-

* *Clifford's Essays*, Vol. ii, p, 83.

cule. It is only feeling. Consciousness proper only belongs to the later and higher members of the series. "If we make a jump from man say to the tunicate mollusks, we see no reason there to infer the existence of consciousness at all." Therefore the doctrine of evolution itself forbids us to regard all ejects as being of the *same* substant as mind. They are only of like substance ὁμοιούσιον not ὁμοούσιον, only quasi-mental * and not in themselves either rational, intelligent, or conscious.†

Besides the evolutionist's reason that it is absurd to attribute consciousness and personality to tunicate mollusks there is another reason drawn from human introspection for asserting elementary feelings to be absolute and unrelated existence. "A feeling, at the instance when it *exists*, exists *an und für sich*, and not as *my* feeling."‡ The self-perception of the ego, the sense that in all my various feelings it is *I* who am conscious, this "unity of apperception" does not exist in the instantaneous consciousness which it unites, but only in subsequent reflection upon it. It consists further in the power of establishing a certain connexion between the memories of any two feelings which we had at the same instant.

There is one other point of extreme importance to be noticed in Clifford's account of the elementary feelings or ejects. They are connected together in their sequence and coexistence by counterparts of the physical laws of matter. Were it not so their correspondence with motions of matter could not be kept up. That they should be thus connected with one another militates at first sight with the characteristic of absoluteness above ascribed to them by Clifford. We must suppose therefore that when Clifford says that their existence is not relative to anything else, he means no more than that they are not ultimately related to a personal consciousness. We must suppose that it is these laws of the sequence and coexistence of elementary feelings which, "when molecules are so combined together as to form the film on the under side of a jelly-fish,

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* Vol. ii, p. 61.
† Vol. ii, p. 87.
‡ P. 80.

so combine the elements of mind-stuff which go along with them as to form the faint beginnings of sentience. The same laws combine feelings so as to form some kind of consciousness, when the molecules are so combined as to form the brain and nervous system of a vertebrate" (p. 85).

We are now after these preliminary explanations in a position to appreciate what is the gist and core of Clifford's speculations. It is this, that the reality external to our minds which is represented in our minds as matter is in itself mind-stuff or elementary feelings. The universe consists entirely of mind-stuff. Some of this is woven into the complex form of human minds containing imperfect representations of the mind-stuff outside them and of themselves also, as a mirror reflects its own image in another mirror, *ad infinitum*. Such an imperfect representation is called a material universe. The two chief points therefore of the doctrine as summed up by Clifford himself are :

1) Matter is a mental picture in which mind-stuff is the thing represented.

2) Reason, intelligence, and volition are properties of a complex which is made up of elements themselves not rational, not intelligent, not conscious.

We shall do Clifford an injustice if we interpret the foregoing theory as a dualistic and not as a monistic view, i. e. as a view which postulates two ultimate principles of reality rather than one. Clifford however often speaks as if feeling and matter were two coördinate aspects of reality, irreducible to one another. For example he allows himself to speak of mind-stuff as going along with the material object, of laws connecting the elements of mind-stuff which are only *counterparts* of the physical laws of matter and not those laws themselves. Again he writes (p. 78) as follows: "The distinction between eject and object, forbids us to regard the eject, another man's mind, as coming into the world of objects in any way, or as standing in the relation of cause or effect to any changes in that world." Such language reminds us of Spinoza's doctrine that body alone can determine body to move and only thought determine thought to think, but we must not therefore suppose that for Clifford

as for Spinoza the two rival kingdoms of thought and extended matter are irreconcilably severed or nominally united by the figment of a single substance of which they are attributes. What Clifford means is that the thing *is* a feeling so far as it is anything at all and that, if things coexist or succeed each other according to laws, they only coexist and follow *as* feelings and conformably to laws of feeling. Not only is the elementary feeling a thing itself, but things-in-themselves are elementary feelings.

It is incumbent therefore on us to ask if an elementary feeling is equal to the double burden put upon it by this theory of being the real universe of things and of creating the human intelligence. In answering this question we must be careful to divest feelings beforehand of any characteristics which they only possess as gathered up into the unity of a self, for at the stage in which we are considering reality selves have not yet arisen. It is hard to conceive what is left of feeling after these characteristics have been removed, nor does introspection help us here, for, as Clifford very truly says, the fundamental deliverance of consciousness affirms its own complexity and it seems impossible, as I am at present constituted, to have only one absolutely simple feeling at a time. Elementary feelings however could hardly constitute the cosmos without they follow one another, coexist, and connect themselves together in their groupings according to certain laws, i. e. by some inherent necessity always take up the same attitudes toward each other, and this much Clifford assumes that they do. Yet these assumptions will not bear examination. Let us examine first the postulate that feelings follow in a fixed order; call them *a b c d*, *b* succeeds *a* and precedes *c* and it makes a difference, which comes after or before the other. Now being absolute feelings, not only is *a* past and non-existent before *b* begins to be, so *b* before *c*, but each is in turn the entire reality and there is no consciousness before which they pass in procession. The real would thus fall into disconnected and mutually indifferent moments *a b c d;* and as each of these in turn exhausts reality and is also unconscious of what goes before and after, there would be no real succession at all. In a real succession it makes a difference whether *b* comes before *or* after *a*, but in the case we suppose it

could make no difference. In truth there can be no relation of before and after between two terms except for a self, which takes note of the one disappearing and of the other appearing; and whenever we speak of things following one another we tacitly presuppose a self before whom the procession passes.

It is even more difficult to understand how elementary feelings can be grouped and complicated in a fixed order of coexistence. Mind has not yet emerged, so we must suppose that the grouping takes place in space. In that case one feeling must be right or left, above or below another. The futility of such speculation will come home to anyone who will try to realise how a feeling of smell can be above or below one of taste.

We have next to consider Clifford's account of the genesis out of elementary feelings of personal consciousness. The hypothesis of mind-stuff, we must remember, was framed in order to preserve the same continuity of ejective facts as we see to exist in the case of objective facts, to provide, that is, a gradual development of the human mind out of the simpler feelings of amœbæ and even of atoms. It must be denied however that the hypothesis is a success if we retain the usual meanings of the words continuity and development. Properly speaking a thing can only be said to grow or develop when it remains the same with itself all through the process and unfolds therein capacities which were anyhow latent in it to start with. Thus a tadpole develops into a frog, a grub into a butterfly, and the child grows into the man. But in the series of ejects which begins from atoms and after running through amœba and ape finally culminates in the human intelligence there is no point of identity, no community between the first and last terms. The eject which is the molecule is denied by Clifford to be either conscious or rational, nor has it even will, like the philosophical factotum of Schopenhauer or Von Hartmann. It is a purely negative conception, the abstract opposite of that mind into which it is to ultimately develop. The hiatus between our intelligence and a thing in itself, which call it feeling, or mind-stuff, or what we will, is merely all that our intelligence is not, is none the less of a hiatus, because it is, with the help of apes and amœbæ, spread out thin, so to speak.

It would be better frankly to avow the chasm that exists than to gloss over it with words like evolution and development.

"When a material organism," writes Clifford, "has reached a certain complexity of nervous structure, the complex of ejective facts which goes along with its action reaches that mode of complication which is called consciousness. When a stream of feelings is so compacted together that at each instant it consists of (1) new feelings, (2) fainter repetitions of previous ones, and (3) links connecting these repetitions, the stream is called a consciousness. Consciousness is thus a relative thing, a mode of complication of certain elements, and a property of the complex so produced." If we look into this statement we see that it only amounts to this : that feelings constitute a conscious self when they become the feelings of a conscious self and not before, for except as gathered up in the unity of a self which has memory and remains the same throughout its differences feelings can be neither new nor repeated nor joined by links.

1) That a feeling is new means that I attend to it, contrast it with former ones, and decide that I have not felt it before.

2) That a feeling is a previous feeling now repeated means that I recognise it as having already occurred.

3) If feelings are joined by links of what nature are these links? Clifford does not say that they also are feelings, so presumably they are not; in that case no link is left save a connecting self. But even if the link is a feeling it cannot be less than a feeling of the togetherness of two other feelings, but such a feeling would involve memory of those feelings and memory involves self-hood. It is really, however, an abuse of words to apply the term feeling in such a case. We might with Hume ask of this feeling which links other feelings "Is it a taste, a smell, a sound, an impression of sight or touch?"

Clifford makes a reference to Haeckel's treatise upon "Zellseelen und Seelenzellen."* Haeckel's view is that every protoplasmic cell has a soul of its own and that when a number of these are combined under certain conditions, as in the human brain, they generate as

* *Deutsche Rundschau*, July, 1878.

their resultant the human soul. He helps out his theory by pointing to such phrases as national spirit, a nation's conscience, a people's will. Nothing, he contends, could be more real than these entities, which are yet only resultants of the wills, spirits, and consciences of the separate individuals who compose the nation.

This is an interesting speculation, which it would be a pity to dismiss abruptly merely because it is groundless. No doubt our bodies and brains may be regarded as colonies of protoplasmic units of which each has an independent life of its own, of which each is born, nourishes itself, reproduces itself, and at last breaks up and dies. The colorless cells especially in our blood are such units and have as good a claim to be called individuals as the amœba which we find swimming about by itself in any pond. These units are certainly alike and must be allowed to have inner states of their own. It may also be freely conceded that the existence of certain inward states in these cells of which my brain and nerves are composed is the condition of certain states of feeling and emotion arising in me. But all these admissions fail to advance us a step toward Haeckel's conclusion. That any number of atoms of protoplasm have souls and soul-states is not enough *per se* to produce an extra soul which is none of them, yet *like* their souls and possessed of a life of its own. Even if the molecules of my brain were each in possession of a self-consciousness as ample as my own, their mere juxtaposition could not give rise to my self-consciousness. From first to last their soul-states remain theirs, mine remain mine. The reasoning employed by Haeckel involves a fallacy of composition :—because each of a colony of cells *a*, *b*, *c*, *d*, has a soul of its own, therefore the colony as a whole has a soul of its own, which is not the soul of any one of them. Nor do the analogies Haeckel invokes help him at all, for the life of a nation does not exist at all except as the lives of the individuals composing that nation, nor do we expect to find any traits in our so-called national spirit which are not ultimately contributed by individuals; Haeckel however would have us believe that the mere composition of the primitive and simple souls of separate amœbæ results in a *human* soul with its wealth of intuitions and interests. The utmost we are entitled to say is

that given a certain collocation of cells in the brain there may by an entirely new act of the infinite be generated a human soul. It is only by playing fast and loose with words that we can deduce this new soul from an aggregate of other souls either like or unlike itself.

It is surprising that Clifford should have recognised that the reality underlying so-called matter is akin to mind and yet have identified it rather with the quasi-mental facts of an amœba or of an atom than with the intelligence of man. The argument by which he arrives at this conclusion is as follows: You as a face, a voice, a touch, as an object to my senses in short, are a mere phantasm or appearance in my consciousness, part and parcel of myself and not distinct from me in any way. But I cannot help inferring an eject, to wit feelings and a consciousness like my own, behind the sensible show of your person; and this consciousness of yours which I address as *you*, is the truth of the object or appearance, which I have. *You* are the reality which I really perceive, so far as I perceive anything more than my own feelings. Similarly when I watch an amœba, what I perceive as a somewhat formless mass of protoplasm is really in itself the struggling life within. Lastly what I handle and perceive as a crystal or metal is really the eject. If here we read force or unconscious will instead of eject or mind-stuff, Clifford's view would practically coincide with Schopenhauer's; for force is truly an eject in Clifford's sense, not an object or appearance to me.

Now the human intelligence arises late in the history of things and is altogether a secondary and derivative thing. Consequently the world is not really what it is for my consciousness. My *Weltanschauung* is false in proportion as my mind is complex and derivative. Conversely, the *Weltanschauung* of each being approximates to truth and becomes less and less illusive in proportion as the eject which it in reality is approaches the primitive simplicity of mind-stuff. I am *really* very little of what I am *consciously*. If you want a truer exponent of the truth of things you must go to the amœba or lower still. It, as compared with me, is *consciously* most of what it is *really*. The absolutely simple atom is probably the only being who is quite free from delusions. The conclusion then to which

Clifford conducts us is this: that the universe is not really such as it appears to our intelligence, still less, I presume, such as it would appear to a higher intelligence than ours. It is really such and such only as it would appear to the being whose eject is the lowest rung in the ladder of mind-stuff. Our universe spread out in space and time, with all its splendours and harmonies, is a delusion; nay, more, the human soul with its æsthetic and moral sensibilities, its fears and aspirations, is the parent delusion which breeds the delusion of a cosmos. "We are such stuff as dreams are made of."

The loose way in which Clifford used the word feeling, as equivalent to any form of consciousness, blinded him to the fact that a qualified thing as such is not given in feeling at all and led him to suppose that the universe as we know it would continue to stand in the absence of all complex ejects whatever. Mr. Green has shown that all theories of the object which ignore the workmanship of thought manifest therein and identify the *esse* of things with their *percipi* lead straight to nihilism. To such nihilism Clifford's doctrine, like Hume's which it resembles, immediately bring us. But Hume did not take seriously the demolition of reality involved in his theory that things are only real as they are felt and that feelings are "entirely loose and separate" (Treatise I, 559) while the solid framework of reality is an illusion bred of a propensity of our minds to feign connections and relations where there are none. Hume tells us that he regarded his own speculations as "philosophical melancholy and delirium," as "clouds to be dispelled" (Treatise I, 501). He writes "I dine, I play a game of backgammon, I converse and am merry with my friends; and when, after three or four hours' amusement, I would return to these speculations, they appear so cold, and strained, and ridiculous, that I cannot find it in my heart to enter into them any further." But Clifford, like Huxley, took Hume *au grand serieux*, forgetting that feeling as such does not reveal an object at all. There is a passage in a letter of Clifford's written to Professor Pollock in September, 1874, à propos of Green's introduction to Hume, which evinces pretty clearly that Clifford did not discern the true drift of Hume's speculations in the way Hume did himself. "I hope," he writes, "you have seen

Sidgewick's remarks on the introduction; he points out that to prove Hume insufficient is not to do much at the present day. . . . . Green, for instance, points out that Hume has no complete theory of the object;—to find fault with Hume for the omission is like blaming Newton for not including Maxwell's electricity in the Principia." Here Clifford hardly writes as if he saw that his own theory of the object as e. g. an unrelated feeling is open to exactly the same criticisms as Hume's, as if he understood, what Hume had an inkling of, that, in proving the ego to be a relative thing instead of the heart and centre of reality, you dissipate the universe into nothing. There are several other features in Clifford's doctrine that call for criticism. It should for example be pointed out that the entire view that ejects are the truth of objects is in the first instance a deliverance of consciousness itself. I only transcend my individual feelings, says Clifford, so far as I infer a consciousness more or less like my own to underlie them; and this underlying eject is the sole reality. "How this inference is justified, how consciousness can testify to the existence of anything outside of itself, I do not pretend to say; I need not untie a knot which the world has cut for me long ago." (Vol. II, p. 73.) But if consciousness is but the property of a temporary conjunction of unconscious feelings, what value shall we attach to its assurances? They are certainly not valid except for itself; they do not hold good for the atomic feelings of which the world ultimately consists. But my belief that the real is in the last resort an atom of feeling is simply an extension of my conviction that ejects are the truth of my feelings. Prove this conviction an illusion—and Clifford does prove it to be such, when he declares consciousness to be a relative thing—and you prove the entire theory an illusion. Thus the tail of Clifford's theory is bitten off by the head.

The hypothesis that feelings can be felt, without being felt as my feelings, is a very noteworthy one. "A feeling at the instant when it *exists*, exists *an und für sich*, and not as my feeling." This is why a Greek said *δέδορκα* in the sense of I see, because the act of perception is necessarily over, when we become conscious of it. "When," continues Clifford, "I remember the feeling as *my* feeling, there comes up not merely a faint repetition of the feeling, but in-

extricably connected with it a whole set of connections with the general stream of my consciousness." This is very truly and acutely observed but it is an admission that the unrelated feeling is no element in our experience, that in our cosmos at least there is no ὕλη whatever, but that every corner of it is illumined by the presence of a relating self. *My* consciousness never directly testifies at all to the existence of an absolute feeling. To be *my* feeling a feeling must already be brought by connections of content into the web of my experience, but what do I know of feelings which are not mine. Are not "absolute feelings" an inference based on observation of low organisms like the amœba, which we are convinced have no self and yet feel? It should be also noticed that this supposition that we are not directly but only *ex post facto* conscious of our feelings ἔξεισιν εἰς ἄπειρον. Thus Clifford writes: "This memory (of a feeling which existed *an und für sich* as *my* feeling) is, *qua* memory, relative to the past feeling, which it partially recalls; but in so far as it is itself a feeling, *it* is absolute, *Ding an sich.*" That is to say, I am not directly but only *ex post facto* conscious even of what I remember. To be conscious of the content of a memory I must *remember* that I remember it. Surely this new memory in turn cannot be known *ex post facto* and so I must *remember* that I remember that I remember *et sic ad infinitum,* before I become really *conscious* of anything at all.

One other point might be raised. What is the nature and origin of the laws which govern the sequence and coexistence of feelings. We have already seen that feelings as such neither follow nor coexist apart from a self.

"These laws are counterparts of the laws which govern physical phenomena." Clifford in writing thus conducts his speculation without prejudice to his common-sense belief in a world of necessarily and rationally related things. He does not see that with the reduction of the real to a feeling physical facts disappear and with these facts the laws to which laws of feeling shall correspond. He is evidently confusing the laws of feeling with the psychological laws of association which depend upon the environment of the individual's senses by a world already real. He does not see that the problem

he really imposes on himself is this: starting from no world at all to arrive at one, or starting from the world as it may be supposed to picture itself in the feelings of an amœba to arrive at it as it exists for the human intelligence. We must not concede to Clifford any more than to Hume this postulate of a real cosmical order which shall give the cue to feelings when and how to follow and coexist. Huxley only allows it to Hume, because not having passed the threshold of Idealistic philosophy he cannot divest himself of it. If, however, this postulate be denied, then the doctrine that the *esse* of things lies in their *percipi* will recommend itself to no one.

F. C. Conybeare.

ARE THERE THINGS IN THEMSELVES?

THE proposition that things in themselves cannot be known, has often, and perhaps justly, been proclaimed as the central idea of Kant's philosophy. Kant concludes the first section of his "Transcendentale Elementarlehre" with this "critical admonition":

"That in general nothing which is intuited in space is a thing in itself, and that space is not a form which belongs as a property to things; but that objects are quite unknown to us in themselves, and what we call outward objects are nothing else but mere representations of our sensibility, whose form is space, but whose real correlate, the thing in itself, is not known by means of these representations, nor ever can be." ("Kritik d. r. V." § 4.)

The term "thing in itself" means originally the object as it is, independent of the thinking subject's cognition. For instance: A rainbow appears in the clouds; the rainbow is not a thing in itself, but the appearance of a thing in itself. The rainbow exists in man's sensibility only. The colors of the spectrum, indeed all colors, the colors of the sky, of the clouds, of trees, of living beings, are sensations only; they are subjective phenomena, they are certain kinds of feelings representing objective realities, but they are not these objective realities themselves. They are perceived in the brain and are projected to a place outside the organism. The rainbow, as it is seen, is not a thing, but it is something seen, it is an appearance only. And this is true of all things seen and heard and perceived by any one of the senses. The sense-pictures are localised in space, they are projected outside to a spot where the combined experience of the senses has taught a sentient being to expect them.

But all the objects of the objective world as they are perceived are and remain subjective sense-perceptions. The world of our senses around us is woven of our sensations. It is mere appearance. This is not a question concerning which there is any doubt, this is simply a matter of fact. But the question arises, "Can we know things as they are independent of sensation? Can we know things in themselves?"

The physicist and every scientist is engaged with the problem, What are natural phenomena independent of sensation? Light is a sensation of vision, but what is the objective process that takes place when a human eye perceives light? The physicist answers this problem by eliminating in his mind the sense-element and by describing the facts of the process in terms of matter and motion. His answer is that light, objectively considered, is a certain vibration of the ether. If we can rely upon physical science, the thing in itself of a rainbow would be a certain refraction of ether-waves. These vibrations of the ether-waves are transmitted from the sun, and being broken in the falling raindrops actually take place independent of cognition, they are real whether we look at them or not.

The ultimate aim of science is a description of the natural phenomena not in terms of sense-elements, but in terms of form. That feature of a thing which we call its matter, constitutes its reality, but the form of a thing, of a motion, or of a process makes the thing that which it is; every act of causation is a change of form, and the forms of things are determined with the assistance of the operations of purely formal thought, i. e. through measuring or counting. Such is science, not only as it ought to be, but also as it actually is. All our scientists, each one in his field, are consciously or unconsciously working out a solution of this problem. And a solution of this problem means, in our conception, the objective cognition of the world—i. e., a description of the natural processes as they are independent of sensibility.

Kant knew very well that a description of things and of natural processes in terms of form was possible. He clung, nevertheless, to the proposition that things in themselves are unknowable. And why? A description of things and of natural processes in terms of

form was in his opinion not as yet a description of things in themselves, for—and here we are confronted with the original idea and the fundamental error of Kantian thought—Kant did not consider the forms of things as an objective quality of theirs, he maintained that the formal element is purely mental and merely subjective. The thinking mind, he declared, attributes them to the object. Space and time, the pure forms of existence, together with all other forms, such as causation, are, according to Kant, not qualities of the objective world, but of the thinking subject. The thinking subject cannot help viewing the world in the form of its own cognition, it transfers these forms to the objects. Therefore the thing in itself according to Kant would not be represented in a description of the thing purely in terms of form, the thing in itself would mean the thing as it would be, independent of time and space.

Let us here point out a distinction between the thing in itself and noumenon. Noumenon means "a thing of thought." The noumenal world is the world of thoughts in a thinking being's mind. The noumenon must not be identified with the thing in itself. The two terms are often confounded, but they have to be distinguished. The idea of reflected ether-vibrations is a "noumenon," but the reflected ether-vibrations themselves, the objective process are a thing, i. e. an objective reality, and in so far as they are a reality, considered as being independent of sensation, we may call them "a thing in itself." Now when Kant denies the objectivity of time and space, he must, implicitly, also deny the objective validity of a description made in terms of measuring and counting. The pictorial world of our sense-perception is subjective, it is built up of sensations, it is not objective; and the world of thought is the attempt to reduce the subjective world of sense-imagery to terms of objective validity, i. e. to terms of form. But this world of thought is according to Kant purely mental, it is purely noumenal, or, in other words, noumena do not represent things independent of cognition, they represent things as our mind thinks them. The sensory world is mere appearance, it is a subjective phenomenon, but the world of thought, says Kant, is no less subjective, it is a world of thought which describes things in terms of purely mental properties and not in prop-

erties of the things themselves. This is tantamount to the proposition, that things in themselves cannot be known.

The term "thing in itself," in the sense of a thing as it is independent of sensibility, would better be called "the objective thing," and we shall so call it when we wish to distinguish it from Kant's thing in itself. The objective thing is the thing, not expressed in terms of subjective elements, such as feelings or sensibility, but in terms of objective elements, i. e. in terms of form. That a description of things in terms of forms is possible has never been denied either by Kant or by any Kantian; but they deny that these descriptions are anything more than mere noumena; Kant and the orthodox Kantians deny that they represent the things as they are in themselves. Thus the term thing in itself in the Kantian sense comes to mean the thing as it is independent of space and time.

That every noumenon is a mental sign is a matter of course; the noumenal world is ideal. But we maintain that these mental signs represent real qualities of the objective world; they have a meaning; the things represented by them are actual features of reality. Kant denies this. To him the noumenal world is purely noumenal. To Kant there is no space outside the space-conception, and so he declares that space is ideal; it is not an objective quality of things. However, we maintain, that our space-conception describes, i. e. depicts, or represents space, our space-conception is ideal, yet space is not ideal but real; it is an objective quality of the world.

Kant's view is dualistic, or at least necessarily leads to dualism, and it appears to rest on an unpronounced dualistic assumption. Kant treats "the subject" as something quite distinct and separate from "the object." If he had borne in mind that the subject is always at the same time an object, he would have treated both subject as well as object as mere abstractions of one and the same reality. Resting upon this erroneous presupposition, Kant's most consequential mistake, in our opinion, was his conception of what he called "the ideality of time and space." If time and space were purely ideal, purely mental, purely subjective, then indeed, the things as they are would forever remain unknown to us, then indeed the thinking mind would be as if shut up within a hollow globe out of

which it could never escape, then indeed the world would be divided into two parts, the objective world, and the subjective world; and the gap between both could never be bridged over. The thinking mind would have within itself a noumenal world built upon the subjective elements of sense-impressions. This subjective world would possess no objective value, it would not describe realities, and the objective world would thus be unknowable, inscrutable, and mystical.

The idea of a thing in itself found another support in a mistaken conception of the unity of certain things, especially of organisms. The unity of a combination of parts is not merely the sum of the parts, it consists in their peculiar combination which makes an harmonious co-operation possible. This unity is an additional element; it is an entirely new creation which exhibits features not contained in any of its parts. There is no latent watch contained in a heap of little wheels and cogs, the watch is created through the combination of these wheels and cogs. The unity of a thing is its form, consisting in a special arrangement of its parts; and this form although not material is nevertheless real.

The materialistic conception overlooks the importance of form; but the spiritualist and also the transcendentalist materialise it as some spiritual substance, as entities or independent existences. They are in this way as much materialistic as the materialist.

The question has seriously been asked, What is a melody in itself. The question has sense when we understand by it, What are those new qualities which appear through a certain combination of sounds? Those qualities are not nothing, they are something quite peculiar. We call one of them rhythm, another one is the fixed succession of notes of a different pitch. The qualities of a melody as a whole are not qualities of its separate parts; yet therefore the melody is not a thing in itself. We might just as well speak of a watch in itself, meaning thereby that peculiar unity of the combination of its parts which makes of them a watch. But if we thus speak of "the watch in itself," we must be aware that this idea has not somewhere in a transcendental fairy-land an independent existence above space and time, and outside of its parts. The unity of a certain interacting group of parts is, on the one hand, no mere addition of the thinking

subject, it is not purely noumenal, it is real and objective; on the other hand it is not a thing in itself, independent of its parts, it is the product of the relations in which its parts affect one another.

Is not perhaps the basis of these vagaries a mistaken conception of language? We call a certain sensory picture a tree and we say, the tree has roots, a stem, branches, leaves, and fruits. Autumn sets in and the wind shakes the leaves off the branches. Now we speak of a leafless tree. We cut the tree down and we speak of a rootless tree. We burn the trunk and the branches, and the tree as a phenomenon is gone, all its properties are taken away. What remains? The tree in itself is left, but the tree in itself does not exist. If all the property of a person is taken from him, the person himself is still left. The properties of a tree, however, are not properties in the same sense; they are qualities. If all the qualities and parts of a tree are gone, if only the tree in itself is left—then there is left nothing but the empty word tree, the idea of a tree.

II. KANT'S VIEW OF SPACE AND TIME.

Let us briefly consider the ground upon which Kant bases his view of the ideality of space and time. Kant asks:

"What then are time and space? Are they real existences? Or are they merely relations or determinations of things, such however as would equally belong to these things in themselves, though they should never become objects of intuition; or *are they such as belong only to the form of intuition, and consequently to the subjective constitution of the mind*, without which these predicates of time and space could not be attached to any object?"* (Kr. d. r. V. § 2; "Meiklejohn," p. 23.)

We should say, to state our opinion briefly, that space and time are not "real existences," i. e. they are not concrete objects, but they are real nevertheless; they are not material things, not thingish realities, yet they are objective properties of things. They are the forms of things and processes, and belong to the things whether they become objects of cognition or not. In this sense, they actually belong to the things in themselves, viz. to the objective things.

Kant argues that space and time are not conceptions derived

* Italics are ours. Kant affirms the italicised question.

from outward experience; they have not been abstracted from sense-impressions. They are necessary representations *a priori*, they are not discursive ideas or generalisations, for there is but one space and one time, space being represented as infinite and time as eternal.

From these arguments Kant draws the conclusions that space and time do not represent qualities of an object but that they are the form of all sensory phenomena, space being the form of the external, time of the internal sense. In other words, space and time belong to the subjective condition of the sensibility and not to the objective world.

We answer that our conceptions of space and time are after all derived from experience. Space and time are abstractions. There is no time in itself. There is no space in itself. Space and time are not directly derived from outward experience, nor are they derived from the sense-elements of experience. Inner experience, i. e. reflection to the exclusion of sense-impression, the experimenting with pure forms, will lead to the construction of the concepts of space as well as of time. Space and time, magnitudes and numbers having been constructed in the mind of a thinking subject are applied to practical experience. When counting three trees we do not abstract the number "three" from the three trees, but we apply to them the system of numbers in our possession.

Says Kant:

"We never can imagine or make a representation to ourselves of the non-existence of space, though we may easily enough think that no objects are found in it. It must therefore be considered as the condition of the possibility of phenomena and by no means as a determination dependent upon them and is a representation *a priori*, which necessarily supplies the basis for external phenomena."

Space being the generalised concept of extended form, and time that of motion without reference to any contents, it is naturally impossible to think the non-existence of space and time. Thinking is an act, it is a process; and any act, any process, any event, is a reality which implies or presupposes the existence of the forms of reality. We can think of matter without reference to form, i. e. we can have the abstract idea of matter; but we cannot think that there is any matter void of form. This does by no means prove that form

has nothing to do with matter. On the contrary, it proves that form and matter are inseparable. The form of existence need not therefore be called "the basis" of existence, it is simply one universal feature of existence. And the form of existence being bound up with existence itself, it is necessary that any thinking existence in so far as it is real, in so far as it is at the same time an object and part of the objective world should also be in possession of the conditions to evolve the idea of form out of itself through inner experience.

This inner experience of experimenting with pure forms is also a kind of experience. It is not a purely subjective process; it is a subjective process to the thinking subject, which to other subjects, however, would appear as an objective process. The laws of pure form as stated in the sciences of purely formal thought, are not merely subjective; they possess objective validity. It is true and from our standpoint a matter of course that the laws of form are *a priori*, which means, they hold good for any pure form.

Modern positivism, such as we defend it, is monistic. We consider the entire world as one great whole and do not forget that all noumenal representations of certain features of the world, of matter, mind, form, even of things and our own souls included, are mere abstractions. Reality itself remains undivided and indivisible. Abstract concepts are mental symbols invented to represent certain features of reality. But although we can in our mind separate these features and distinguish them from other features, in the world of reality they cannot be cut out or thought of as things in themselves. Granting the oneness of reality which dawns upon us instinctively before consciousness is fully matured, we are inevitably led to the conception that there is but one form of reality, which implies that there is but one space and one time.

III. FORM NOT IMPORTED BY THE MIND INTO REALITY.

Kant says, and in this we agree with Kant, that "all thought must directly by means of certain signs relate ultimately to *Anschauungen*." The word *Anschauung* (the "onlooking," generally translated by "intuition") means the immediate presence of sense-perception. Says Kant: "The effect of an object upon our faculty

of representation is called sensation, and that intuition which refers to an object by means of sensation is called empirical intuition." For instance, I see a rose: The image of the rose which I see is the appearance or the phenomenon. Kant continues:

"That which in the phenomenon corresponds to the sensation I term its *matter*, but that which effects that the contents of the phenomenon can be arranged under certain relations, I call its *form*."

In other words matter is that which affects the senses and form is to be expressed in relations. The difference between the formal and the material is obvious. The formal is of great importance, nay, it is of paramount importance, but the formal is neither anything apart from the material nor is it a substance. Both concepts are disparate, but they have been derived by mental abstraction from the same reality.

We fully agree with Kant when he continues:

"That in which our sensations are merely arranged, and by which they are susceptible of assuming a certain form, cannot be itself sensation."

But we do not agree with Kant when from this proposition he derives the following conclusion:

"It is, then, the *matter* of all phenomena that is given to us *a posteriori*; the *form* must lie ready *a priori* for them in the mind, and consequently can be regarded separately from all sensation."

Here lies the great fallacy of Kant, which rests upon an erroneous statement and an actual distortion of fact. The phenomenon of a rose which I see before me is not merely sensory, but also formal. The phenomenon, i. e. the image of the rose (*die Anschauung*) is a sensation of a special form. The term sensation as it is generally used implies its having a special form. Accordingly the form does not, at least not from the beginning, lie ready *a priori* in the mind; the form is given together with the sensation.

Kant speaks of "that which is annexed to perception by the conceptions of understanding," as if our understanding added the formal out of the mind to the sensory elements given by experience. What is the mind? The mind is a product of the world; it is a system of symbols representing the things of the world and their re-

lations including such possible relations as are worthy of aspiring for. In short, the mind consists of ideas and ideals.*

It has often been said that the mind is the creator of the sensory and noumenal world. This is incorrectly expressed, for mind *is* the sensory and noumenal world itself. The sense-pictures, the thought-symbols, and the ideals of a man are actual parts of his mind. They are not products but constituents of his mind. Their organised totality is his mind itself. The activity which takes place in a mind, i. e. the combining, the separating, and recombining of memories, thoughts, and ideals are the actual realities, and if we speak of a man's understanding, or reason, or any other so-called faculty, we have to deal with abstractions. The activity of mentally separating form and matter might be called by the general term understanding. However the faculty of understanding is not a distinct mental organ, it consists in the single acts of understanding, and the word understanding is a mental symbol representing them all together as if they were one thing.

And certainly these acts of understanding as little import the formal into the world of sensation as the miner carries the metals into the mines. The formal, the relational, or the *a priori*, is first extracted out of the data of experience not otherwise than iron is gained out of the ores. The ore is not iron but it contains iron, the phenomenon of a rose is not purely a sense-impression, it is a sense-impression of a certain form. We are aware of the fact that mind is an entirely new creation different from the non-mental world, yet at the same time we maintain that the elements from which mind develops are the same as the elements of the non-mental world. Nature furnishes the entire raw material and whatever new creation the product of a new development is, nothing can be added to the raw material, of which the formal is the most indispensable part.

The raw material of sensory phenomena as soon as it is worked out, and also the activity of working it out are called mind. Mind accordingly originates with the appearance of sentient substance as

* The problem of "The Origin of the Mind" having been the subject of a former paper need not be discussed here. See *The Monist*, Vol. i, No. 1, p. 69–86, and *The Soul of Man*, pp. 23–46.

the organisation of feelings and the memories of feelings—these memories being conditioned through the preservation of the form of sentient substance. Mind is not something different from the world but must be considered as its product and highest efflorescence. Mind is made of the same substance as the universe and the mind-forms are the forms of objective existence.

As soon as a system of forms has developed in a sentient being, thus constituting its mind, this system can again be referred to the objective forms of things. In this sense we can say with Kant, that the understanding imports form into phenomena ; and this re-importation, this referring the objectively formal to the subjective system of formal thought, is an essential element in cognition.

IV. PROFESSOR JODL'S VIEW OF THE THING IN ITSELF.

The idea of a thing in itself independent of space and time and the unknowableness of the thing in itself are the basis of all agnosticism. And an agnostic tendency is at present predominant even among positive workers and thinkers. Agnosticism is still the philosophy of the day even among those who have surrendered its basis (which is Kant's transcendental idealism) and accept the monistic world-conception. Friedrich Jodl, professor at the University of Prague and author of the well-known "History of Ethics," in answer to a letter of mine formulates in concise terms this modernised view of a thing in itself. He writes:

"You are right. The thing in itself is a dangerous idea,—one that easily leads astray. But so long as we have no better expression to represent the relation for which it stands we shall have to use it. You also accept the following three momenta: (1) Objective existence or reality. (2) Effectiveness of Reality upon consciousness, i. e. sensation. (3) Effectiveness of sensation upon consciousness and reproduction of sensation in consciousness, i. e. representation. Nobody, however, can maintain that in sensation, and still less in representation, the whole of reality will appear in consciousness. First we learn from history what progress has been made in the cognition of reality and secondly it is obvious that we are infinitely far from an actual comprehension of reality. We have strong reasons to suspect that there are many processes in reality which in no way affect our sensibility and cannot enter into consciousness, and we know for sure that we do not comprehend—i. e. reconstruct from them assumed causes—many things, indeed most things, which we observe

in their effects. Our cognition of nature, if we begin to construct, always leads us to some x. It may be doubted whether this x is an unknown or an unknowable. In my opinion it is both—anyhow we cannot eliminate it.

"I am convinced that many things which are unknown to-day and appear as unknowable will be known and knowable in a thousand years. But I doubt whether the total mass of the Unknowable has been noticeably diminished. For the Unknowable is infinite and the infinite if divided by any finite number can never produce a finite number. Every solved problem contains new and greater problems. What shall we call this? I believe that the term "thing in itself" is after all the best expression. Whoever wants to turn a mystic on account of it cannot be prevented. This state of things can be brought out of existence by an act of violence only."

It is most certainly true, as Professor Jodl says, that sensations do not depict the whole of reality. But why should they? Cognition is possible only by limiting the attention to a special point. Every sense-organ is an organ of abstraction. Every sense depicts the effects of reality in its own way and in this way alone. It may freely be granted that there are many processes in reality which do not affect our sensibility. Yet there is nothing in reality which does not affect something in some way. If it did not, it could not be said to exist. The chemical rays of light do not affect our eye, they are invisible and were for that reason not noticed. But these rays are not without any effects. If we cannot observe them directly, we can invent sensitive plates or other instruments for observing their effects indirectly. Indirect observation makes it possible that the limitation of our senses does not result in a limitation of knowledge.

Says Professor Jodl:

"Our cognition of nature if we begin to construct always leads us to some x."

This sentence indicates that Professor Jodl's and our conception of cognition are different. Cognition is not a reconstruction of assumed causes; it is a unification of our representative sensations or ideas. Something is again noticed, it is re-cognised, to be the same thing. Cognition is adaptation of new facts to our present stock of knowledge; it is the proper arrangement of new data in our system of mental representations. Cognition, accordingly, is the reduction of the unknown to terms of the known. How can it ever lead to an x? The positive conception of cognition is, as Kirchoff defines, it "an exhaustive and most simple description of facts." It is a re-

construction of facts or, as Mach says, *Ein Nachbilden der Thatsachen.* Cognition is based upon *Anschauungen;* it will lead to an ultimate *x*, only in case we expect that cognition instead of being a description of facts will have to give us information about how it happens that facts exist, how they originated out of nothing.

Professor Jodl's thing in itself is not outside of Space and Time (as is Kant's thing in itself) but it is the overwhelming infinitude of problems to be solved with which we cannot hope to get through even though our life lasted billions of light-years. Let me repeat here what I said in the second edition of "Fundamental Problems,"

"A philosophy which starts from the positive data of experience, and arranges them in the system of a monistic conception of the world, will meet with many great problems and in solving them will again and again be confronted with new problems. It will always grapple with something that is not yet known. The unknown seems to expand before us like an infinite ocean upon which the ship of knowledge advances. But the unknown constantly changes into the known. We shall find no real unknowable wherever we proceed. The idea of the unknowable is like the horizon—an optic illusion. The more we advance, the farther it recedes. The unknowable is no reality; the unknowable can nowhere prevent knowledge nor can the horizon debar a ship in her voyage, from further progress." (p. 271.)

Man's knowledge has value as positive information concerning the facts he has to deal with, and the infinitude of the not known, the infinitude of other problems and things which he will never face, is of no consequence whatever. Positivism commences and has to commence with the positive facts of the given experience and not with the infinitude of possibilities which lie beyond our horizon. Compare knowledge to property and suppose a man is to buy a farm. Shall we discourage him with the idea that the whole amount of soil on the surface of the earth and of other planets is infinite, and this infinitude of all existences if divided by his finite little possession can never result in a finite number. Even if it were doubled, if it were multiplied a thousand times, it remains as good as nothing in comparison with the rest of the world which he cannot acquire. However, his possession is something to him, whatever the relation of infinite possibilities may be in proportion to it.

The concept of infinitude serves a good purpose in its place, but we cannot use it for analogies in other fields or bring it in rela-

tion to concrete realities. We produce confusion and drop into mysticism as soon as we handle the idea of infinitude as if it were a positive thing. The infinite is a function which is mathematically expressed by $\frac{1}{0} = \infty$, and whenever we bring anything in relation to the infinite, we at once dwarf the greatest number no less than the smallest number into zero.

Clearness of thought is the indispensable method of sound philosophy for constructing a positive world-conception, which in great outlines is a description of the facts of reality. By suffering mysticism as a legitimate conception either in science or in philosophy, we enhance the interests of those who prefer the chiaroscuro of vague notions to clear thought.

V. CLIFFORD'S AND SCHOPENHAUER'S CONCEPTIONS OF THE THING IN ITSELF.

When Clifford speaks of things in themselves he does not mean Kant's thing in itself, he means neither the object independent of the thinking subject nor the thing independent of space and time. He means the thing as it would be if viewed from the thing itself.

A man appears to other thinking beings as an active body, as an organism that is in motion; but to himself he appears as a feeling being. The subjectivity of things as they appear to the things themselves consists in our own case of states of awareness, and this subjectivity is called by Clifford the thing in itself.

A certain brain motion is in its subjective aspect a feeling. This feeling is according to Clifford the thing in itself of the visible, observable, and measurable motion. The thing in itself of so-called inanimate beings is not feeling, but elements of feeling. In other words, the world-substance is everywhere in itself potentiality of feeling and Clifford therefore calls it "mind-stuff."

Schopenhauer arrives at his conception of the thing in itself practically in the same way. There is the world as it appears to us, the objective world of motion in space and time. What the kernel of this world may be, we can know from self-observation. The kernel of ourselves, Schopenhauer says, is Will; and the will is also the kernel of things; the will is the thing in itself.

We understand by will the passage into action, i. e. an incipient motion of the organism if accompanied with the psychical element of consciousness, and this consciousness is a state of awareness of the will including its direction and aim. Will, as the the term is generally used, is always conscious. Schopenhauer however speaks of the will as being blind, i. e. without knowledge, without awareness of itself and its aim. This indicates that he uses the word not in its original but in a figurative meaning.

The fall of a stone may be characterised as a blind motion without awareness and without the stone's having a consciousness as to its direction or aim ; and in a similar (although not in the same) way Clifford speaks of the elements of feeling as being not rational. We agree with Schopenhauer that that factor in a stone which makes it fall when placed in a certain position is as much a natural process as the act of a man, only of a lower grade and a simpler kind. Schopenhauer calls that which both have in common "will." Yet in common language we call the objective aspect of that which both processes have in common, "motion." What then is the subjective aspect of a falling stone? It is not a state of awareness, it is no feeling, but it is the potentiality of a state of awareness, it is potential feeling. There *is* a subjective aspect, but this subjective aspect is so far as we can judge of no account to the stone.

That something in the stone which corresponds to man's consciousness, viz. the stone's subjectivity, is not mind, but it is potential mind. And potential mind is not as Mr. Conybeare expresses it "mind diluted," potential mind is no mind at all.

The world-substance as it exists in inorganic matter is not mind. But the universe taken as a whole, the All, is for that reason not less than mind. On the contrary, it is infinitely more than mind. The All is not brute force and inert matter only, the universe is a cosmos, and its subjectivity necessarily develops, according to the laws of form which characterise the cosmos throughout, into mind. We disagree with Professor Clifford most emphatically when he describes the mind-stuff of which according to his terminology the world consists, as not rational.

The world it is true is not rational in its elements, but the world

as a whole, the entire cosmos with its laws and especially in its formal order, is the prototype of all rationality. Human reason is rational only in so far as it conforms with, as it reflects, as it describes the order of the cosmos. The human mind is a microcosm. We do not call the macrocosm, in whose image the microcosm has been created, a mind, because we understand by the term mind not reality itself but reality pictured in symbols of feeling. We understand by mind the individual conception of the world as it is mapped out in the brain of a sentient being, and not the universe itself, not the all-being. We understand by mind a creature and not the creator, a soul and not God.

The cosmos, the All, God, that which creates the mind, is not dead, not irrational, and not inferior to mentality. It is the source of all life, it is the condition of all order, it is the standard of all morality. All the minds that exist are but parts of it. In it, with it, and through it we live and shall live forever. For although we shall die, our being can never be blotted out. Existence knows no annihilation and life knows no death. What we call death is a dissolution of life in a special part, but the contents of a life, the thoughts, the ideas, and the ideals are preserved and transmitted, they are implanted into other minds ; the soul continues to live. And this continuance of the life of the soul is not a mere dissolution in the All, it is not the immortality of force and matter ; it is the preservation of its special existence, of its most characteristic and individual features for an immeasurably long period hence, which will last as long as the conditions of life remain favorable upon earth. Yet even if a whole solar system were broken to pieces, life will reappear ; mind will be born again to struggle for truth and to aspire to live in conformity with truth.

VI. THINGS AND RELATIONS.

The proposition that things in themselves are unknowable finds a strong argument in the statement that we can know relations only, that all knowledge is relative. It is undoubtedly true that all knowledge is relative and knowledge is a knowledge of relations. But

what is a relation? When I once proposed this question, I was answered:

"A relation is the connection between two things; it is that something in which the one stands to the other, in short, it is the betwixtness of things."

This is exactly what a relation is not. From such a definition of relation agnosticism will necessarily follow. It is a misstatement of the case, and when we come to follow out the idea, we shall be led into inextricable contradictions, and unless we revise the whole argument, we shall have to confess that we are at our wit's end.

The question, What is a relation? was one of the issues between the two great mediæval schools of philosophy, the Nominalists and the Realists.* The Nominalists answered: "A relation is a mere product of the mind," while the Realists declared that "a relation without which the thing cannot be, is in the thing."

Both schools relied upon Aristotle's authority. Aristotle had declared that matter is mere possibility of existence (it is *δυνάμει ὄν*) and form is that which makes it real, the formal is the real, form is existence or being (*οὐσία*). The metal of a statue, Aristotle says, is its matter, the idea of the statue is its form, both together make the real statue. The metal having had another form before, did not exist with the inherent purpose of being this metal of the statue. The metal is the mere potentiality of becoming a statue.† Hence, says Aristotle, not the matter but the form constitutes the reality of the statue, the form is that which is real, or that which makes actual, *ἐνεργείᾳ ὄν*, it is the being in completeness or actuality, *ἐντελεχείᾳ ὄν*, i. e. that which makes a thing exist in its purpose (*ἐν τέλει ἔχειν*). If the formal alone is and makes real, relations must be real. This is in favor of the Realists.

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* It is scarcely necessary to mention that mediæval Realism is different from modern Realism.

† Aristotle's idea of matter being potential existence is a fiction. Fictions of that kind are useful for certain purposes, but we must not forget that they are fictions. We might just as well introduce any other system of fictions. For instance we might with certainly not less propriety look upon the idea in the mind of an artist as potential reality while its appearance in a material shape is conceived to produce actual reality.

Yet Aristotle's philosophy is not in every respect clearly worked out. In fact there are two Aristotles, the one being a Platonist, the other a naturalist, the one believing in universals, the other investigating concrete things and taking individuals as real beings. But both Aristotles and with them both parties of the schoolmen had no clear conception of the nature of ideas, what they are, and what they purport, and how we can discriminate between their subjective and objective elements. Ideas have a meaning. Is their meaning purely mental or has it an objective value? We say that it has.

The same Aristotle who considered the formal as that which makes real, denied the objective existence of relations. He said that such qualities as greater, or smaller, double or half, indeed all relations (the πρός τι of things) did not belong to the things, but were added to them by the thinking subject. Ergo relations are mere products of the mind, they have no objective value. This was in favor of the Nominalists.

Now it is true that some relations are purely mental in so far as the comparison upon which they rest is purely imaginary. An answer to the question, Who was the greater, Alexander or Cæsar? depends upon the standard of measurement which we create for the special purpose. Some such relations have no objective value, they are not facts but a play of imagination dependent on the recognition of the standard of measurement. But how is it, if we express the relation between the gravity of a stone and the whole mass of the earth as it manifests itself in the stone's fall? Is that also a mere product of the mind? Certainly Newton's laws describing gravitation in exact and mathematical formulas are a product of the mind, but this product of the mind has an objective value, it has a meaning, it describes facts, and these facts are certain relations between certain things.

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The fault of the modern misconception of relativity lies in the assumption that the two or more things are considered as things in themselves. We are apt to consider the gravity of two masses, of a stone and of the earth, as a relation between two independent

things. Here is the stone and there is the earth and the relation is considered as some third item, being the connection in which the one stands to the other.

In reality there are not two things and, in addition to them a betweenness of the two things. The world is not a sum of things, not even a system of things, but a whole indivisible entirety and what we call things are abstractions which serve special purposes in the household of cognition. All things consist as it were of innumerable relations to all other things. When we abstract one special process which takes place in the province of what we are wont to call *two* things, we have to deal with a relation.

There are no relations of themselves and there are no things of themselves. Relations describe certain features of reality obtaining between what we call two or more things, and in this description all other features of which the real things consist are purposely omitted.

There is no quality of things but it is at the same time a quality of relation. Every quality of a thing characterises it under a certain condition; it appears as an effect upon something and thus it is actual as a relation. Cognition analyses things into bundles of relations and all these relations together make up the things.

The modern idea that we can know relations only and that there are things in themselves which are unknowable is an old error inherited from mediæval scholasticism, and its roots can be traced back to the philosophy of Aristotle. The difficulty disappears as soon as we consider the whole world (ourselves included) as an interacting whole, and that the conceptions "things" and "relations" have been invented for describing certain of its parts and certain of its interactions or interconnections.

If we push the idea of things in themselves to the ultimate extreme we arrive at the atomistic conception of the universe. *Atoms are the things in themselves reduced to the point system.* If we consider the world as a heap of innumerable atoms, we are at a loss how to explain the interaction among these atoms. The atomist universalises the substance-abstraction and will be disappointed afterwards not to be able to deduce from his universalisation other qualities which are found in reality, such as the relations of things, their

interconnections, their spontaneity of motion, the life of organised beings, and the mind of thinking creatures.

Ideas are symbols and symbols have a meaning. The whole realm of mental representations may be viewed in their symbolism or in their significance. Considering their symbolism, ideas of things as well as of relations, are products of the mind, considering their meaning, ideas represent realities; in other words: their contents or that which they signify is real.

It appears that neither Nominalism nor Realism is right; yet if we stretch them only a little, if we are allowed to interpret them in the light of a monistic world-conception, both are right. They cease to be contradictory and become complementary. Universals are real, say the Realists, i. e. the forms and relations of things are actualities. Universals are names, say the Nominalists, i. e. the relations and forms in which we describe the world are mental symbols.

The Realists had the misfortune to defeat the Nominalists entirely, and thus had a chance to insist upon being right in every respect. All opposition having ceased, the errors of Realism grew in extraordinary exuberance. Nominalism in the mean time raised its head in opposition to the recognised authority of the church as well as the schools, slowly yet powerfully and irresistibly. The errors and the tyranny of Realism gave strength to the Nominalistic movement which reached its height in Kant's philosophy. The Realists had gone to the extreme of declaring that universals were things, real substances, independent of single and concrete objects, and the Nominalists on the other hand, represented by Kant, went so far as to declare that all relations, time and space included were *mere* products of the mind.

If the relations are mere products of the mind, all knowledge being a knowledge of relations, knowledge becomes impossible. That last consequence was drawn by Kant and is emphatically insisted upon by agnosticism.

There is but one world-conception that can dispense with these conclusions: it is that view which conceives of the All as a whole; and of knowledge as a description of its parts, qualities, and relations, ever mindful on the one hand that the parts are parts, that

qualities and relations are certain features only, not entire realities, or isolated entities, and that the symbols thereof frequently overlap each other; on the other hand that there is nothing absolute,* and that there are no things in themselves.

The relativity of knowledge, whether we conceive of it as the relativity of the object to the subject in general or as an appreciation of the fact that all knowledge gives and can give information of relations only, does not lead to the conclusion that knowledge is impossible. Relativity is a fundamental feature of knowledge, and we shall understand that it must be so if we consider that reality itself is a great system of relations.

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The interconnection of all things with all things appears to be so complete, that if we intended to explain or understand one single fact fully and exhaustively in all its relations, past, present, and future, we should be obliged to give a complete description of the universe. Says Tennyson:

> "Flower in the crannied wall,
> I pluck you out of the crannies;—
> Hold you here, root and all, in my hand,
> Little flower—but if I could understand
> What you are, root and all, and all in all,
> I should know what God and man is."

We might address in the same way anything else, an atom of hydrogen, a grain of sand as well as the sun, the action of a tiny speck of irritable protoplasm as well as the soul of man.

VII. IS THE EGO A THING IN ITSELF?

Prof. Lloyd Morgan in his excellent work "Animal Life and Intelligence" uses repeatedly the word "mind" as if it were a thing in itself. Professor Morgan is a monist and he does not intend the word to mean a thing in itself; yet such is the influence of language

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* The term "absolute" is for that reason neither meaningless nor redundant. It denotes a certain method of viewing things, but is not an objective quality of things.

that we, all of us, unless we are constantly on our guard, will inadvertently slip into dualistic expressions. Professor Morgan says, with reference to certain sensations of animals (p. 309):

'From these stippled sensations the mind in all cases elaborates a continuum.'

The unity which arises out of stippled sensations and which through their interaction becomes a continuum is called mind. To speak of mind as working out the continuum is mythological language, it is the transformation of the abstract idea "mind" into a real and independent thing whose existence is conceived to be independent of the reality from which it has been abstracted.

Again, Professor Morgan says: "Our constructs are literally our handiwork." Our constructs, i. e. our mental signs constructed to represent realities, constitute our soul; they are we ourselves.

Professor Morgan, as I understand him, does not believe in a mind behind the psychical facts of mental activity, he does not assume the pre-existence of mind to the continuum elaborated. His view of mind appears to be the same as ours. The more noteworthy, then, is his usage of the term "mind." It is a remarkable instance of how language naturally inveigles us into a belief in things in themselves. Words seem to denote concrete existences and as soon as we use words in this way we are entangled in dualism.

Prof. F. Max Müller as well as the late Prof. Thomas Hill Green, the founder of the Oxford transcendentalist school, start from this assumption, that man's mental activity is performed by a something which is quite distinct from it. This something is the thing in itself of the human soul. Prof. F. Max Müller says:

"If mind is the name of the work, what is the name of the worker? . . . . It is what we may call the ego as personating the self; it is what other philosophers call the monon. Let us call therefore the worker who does the work of the mind in its various aspects, the Monon or the Ego."

This conception which asks for the worker of the work is based upon a materialistic view of the human organism. An organism is not a dead machine which must be set a-going by somebody who attends to it. Organisms are active and not passive, they are living and not dead. Every part of an organism is a worker and so is the

whole. And if we speak of its "life" we must bear in mind that "life" is an abstract which denotes a certain inseparable quality of the organism. The work and the worker are two abstracts of one and the same thing. The reality from which these terms have been abstracted is "something working." This something working does not consist of a worker and his work, but the worker is in every part of his work. The worker of our mental activity is the work itself. Both are identical.

The objection is made: "Whence does the activity come which appears in the realm of organised life." The answer is: Activity is a universal quality of all existence. There is no such a thing as absolutely inert matter. Every chemical element combines with other elements spontaneously, according to its inherent nature and not through the influence of a worker manipulating its atoms. Spontaneity is a universal feature of reality. Nature is throughout self-working activity. And this its most remarkable character is preserved in its highest efflorescence in the soul of man.

The present number of *The Monist* contains a lucid presentation of the transcendentalist position by Mr. F. C. Conybeare, an Oxford scholar and a personal disciple of Professor Green, with special reference to the views of Prof. William Kingdon Clifford. Mr. Conybeare, like Prof. F. Max Müller, assumes a Self independent of the reality from which the idea of self has been abstracted, and he attempts to prove the existence of this self as follows:

"In truth there can be no relation of before and after between the two terms except for a self which takes note of the one disappearing and of the other appearing; and whenever we speak of things following one another we tacitly presuppose a self before whom the procession passes."

The transcendentalist adopts, in the realm of psychology, the error of atomism. If we accept the view that the world consists of isolated atoms, we are at a loss how to bring the atoms into relations; the unity of every group of atoms, every thing and every system of things will become a mystery. And if we look upon feelings as unrelated things in themselves, their connection becomes a deep problem. Mr. Conybeare solves this problem of the connection that ob-

tains among the feelings supposed to be atomical, by postulating a relation-producing entity, called the self. He says:

"No link is left, save a connecting self."

And this assumed entity of a connecting self or ego is taken to be "the heart and centre of reality." Reality, that which we have to deal with in real life and what is commonly called reality, appears as a second class of reality in comparison with this assumed thing in itself of our existence. The thing in itself is thus regarded as something realer than real; it is conceived to be a reality of a higher degree.

Mr. Conybeare is very explicit in the explanation of his transcendental "self." He says:

"Feelings constitute a conscious self when they become the feelings of a conscious self and not before, for except as gathered up in the unity of a self which has [sic!] memory and remains the same throughout its differences, feelings can be neither new, nor repeated, nor joined by links."

What does "self" mean? What can it mean? What is the "unity of the self"? These are questions which have not been answered to our satisfaction by the transcendentalists. Whenever they speak of the self, they lose themselves in mysticism. Their "self" is an assumed entity which they have carefully divested of everything real and actual. Their self is transcendental and not a being of the world; it is a myth.

Let us describe the simplest possible instance of psychical activity.

An irritation takes place in some sentient substance. This irritation produces an extra-commotion. We must say "extra-commotion" because all sentient substance is in a state of constant activity. This extra-commotion causes the sentient substance to assume a certain form, and while it lasts, a certain and special feeling takes place in some part of the sentient substance. This certain and special feeling ceases, as soon as the extra-commotion, caused through the irritation, abates. There can be no doubt that certain effects of this extra-commotion remain. Its trace is left in the sentient substance and this trace is preserved in the constant whirl of

the sentient being's normal activity. Now, we suppose that an irritation of the same kind takes place in the same sentient substance. This second irritation finds the substance no longer in the same condition. It finds the sentient substance prepared to receive it. The feeling which now appears is no longer a simple feeling. The second irritation causes a commotion as much as the first, and this commotion acts as a stimulant upon the trace left by the first irritation. This trace being again in a state of extra-commotion is revived and the same kind of feeling appears. Thus the second irritation is accompanied by a state of awareness in which two feelings are blended, the revival of the former feeling and the feeling of the present irritation.

The preservation of traces left in sentient substance is the condition of memory. We understand by memory the psychical aspect thereof, and the act of reviving, so that their correspondent feelings will reappear, is called recollection.

"Memory" has been the greatest stumbling-block to our psychologists as well as to our philosophers. Even modern works written from a positive standpoint treat memory frequently as a mysterious faculty of the mind. Mr. Conybeare speaks of the self as *having* memory, while in fact, memory is one of the features, indeed the most important feature, of mind-activity.

Says Mr. Conybeare:

"Such a feeling [of the togetherness of two feelings] would involve memory and memory involves self-hood."

Memory does not involve any transcendental self-hood. True self-hood, viz. that which can reasonably be understood by self-hood, is not prior to, not the cause of memory; self-hood, i. e. the personality of a man, the organised unity of the psychical aspect of a human organism, is consequent upon, it is the effect of, memory. Self-hood is the product of memory.*

The self is also called the ego. What is the ego?

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*See the chapter "Soul Life and the Preservation of Form" in *The Soul of Man*, p. 418.

The ego is a Latin term used in philosophical language to denote the pronoun "I," and the pronoun "I" is quite a definite nerve-structure situated in quite a definite place of the centre of language. As all words, so also the term "I" is a symbol. Its general meaning is unequivocal; it stands for the name of the speaker. It stands for Mr. Brown, if Mr. Brown speaks of himself, for Mr. Smith, if Mr. Smith speaks of himself, etc.

What does Mr. Brown mean when he says, "*I* speak, *I* act, *I* will, *I* feel pain, *I* feel pleasure, *I* intend," etc.?

When Mr. Brown speaks, a certain number of word-structures in the centre of language are in a state of commotion, innervating the muscles of speech. Correspondent to this physiological process, a state of consciousness obtains, which is an awareness of the situation. When he adds: "I say this," it is again a special nerve-structure that is irritated into action and he might just as well say: "Mr. Brown says this." The idea of Mr. Brown, viz. of his own personality, is just as much an idea as his idea of Mr. Smith. The main difference consists in the fact that the idea of one's own personality is very much more important than the ideas representing other personalities.

The nervous structure representing the feeling of the idea "I" must be the centre of innumerable nervous tracts connecting it with all those activities which when performed are thought of as done by ourselves. The "I do this" is almost constantly ready to fill the present state of consciousness and to accompany any action performed through the innervation of other brain structures.

Sentient substance is not always actually feeling. It is feeling only when in a state of extra-commotion. Systems of sentient substance are called organisms; all its structures are interconnected and most so those structures in which sentiency as well as motory impulses are differentiated—viz. the nervous structures. The extra-commotions which agitate the different nervous structures, the memories of former sense-perceptions, of sounds, of words, of ideas depend upon the conditions of the moment. Now this and now another structure will represent the summit of commotion and the feeling of the strongest commotion at a given time will under normal conditions

appear as the contents of consciousness. It is as it were the focus in which the attention of the whole organism is centralised. That which appears in the focus is clear and distinct, while the other weaker feelings rapidly disappear into the undistinguishable general feeling of the organism as a whole, commonly called cœnæsthesis or *Gemeingefühl.*

The centre of attention is constantly changing ; yet whenever a thinking creature stops to ask himself, who is doing this ? Who is willing this ? Who is thinking this ? the answer is given : "I am doing this ; I am willing this ; I am thinking this." The structure of the little pronoun "I" seems to be the most ticklish of all ; it is always ready to force itself into the foreground.

The answer, "I am doing this," proposes the *totum pro parte.* The whole personality is supposed to do what a part of it is performing. The hands are executing this work ; these hands of course are innervated from certain regions of the brain. Some parts of the personality are in a relative rest and have nothing to do with the work presently on hand. A commotion in a certain number of brain-structures represents the physiological aspect of a deliberation, perhaps the planning of some action. Psychologically considered certain ideas appear successively and sometimes simultaneously in the focus of consciousness. The ideas disagree and other ideas replace them until a combination is formed in which the ideas do agree. This state of agreement brings a temporary peace into the tumult of conflicting ideas ; the plan is ready; it may pass into action at once, or, perhaps, the ego-structure will appear in consciousness and will quietly think : "I will do it."

When certain motory nerve-structures are innervated, they cause under normal conditions their respective muscles to contract, they produce motion. Under normal conditions the nervous process accompanying the idea "I will raise my arm" serves as an irritation upon the cortical centre of arm-raising, yet it is not the "I" that in some mystical way raises the arm. The idea "I" has as little and as much to do with this discharge of energy as any other idea. The idea "I" is not the power behind the veil that produces the will.

What is will? As soon as some plan of action is joined with

the idea that it should be executed, supposing it be not counteracted by any stronger idea that it should not be done, this combination represents a will. A will accordingly is the psychological aspect of an incipient action, and it is usually, or if it is not it can always be accompanied with the thought "I will it." But this accompanying thought however is not the energy displayed in the act of willing.

The "I will it," or "I do it," or "I perceive it" being always ready to appear together with the strongest idea in the field of consciousness, the term "ego" has acquired a specialised meaning. It means that part of a man's personality which at the time is the contents of the "I will," or "I think," i. e. it is his present state of consciousness. Every organism is a coherent system and thus all the feelings of an organism naturally blend into a unity. The strongest feeling however appears in the normal state of waking in a distinct clearness thus representing a centre of consciousness.

However, whether we use the term "ego" in the sense of the idea "I" meaning the whole personality of the speaker, or in the sense of the present centre of consciousness, it designates in either case a definite reality, the origin and action of which are natural facts and as plain as any other psychological phenomena.

Neither the ego-idea nor the centre of consciousness are transcendental. The former is as little mystical as are the ideas dog, horse, man, etc.; the latter no less miraculous than any other feeling or display of sentiency.

VIII. THE EGO-CENTRIC VIEW ABANDONED.

The contrast between the old and the new psychology appears strongest in their conceptions of the ego. The former believes that the ego is "the thing in itself" of man's soul and takes it to be the centre of all psychical phenomena, while the latter looks upon the ego-idea as one idea among many other co-ordinated ideas and considers the centre of consciousness as the strongest feeling at a given time, which as such naturally predominates over and eclipses the other feelings of the organism.

The new psychology brings about a change of standpoint similar to that effected by the Copernican system in astronomy. In as-

tronomy the geo-centric, and in psychology the ego-centric standpoint had to be abandoned. And all things seem to be upset to those who are still accustomed to the old conception. To them the physical and moral world-conceptions appear to become impossible. If the new view were correct, so they imagine, the entire universe would break to pieces. All our modes of speech are formed in accord with the old view. We speak of sunset and sunrise, and so in our daily conversation the little pronoun "I" plays a part which makes it seem as if the ego-idea were the centre of all soul-life and as if this "I" were the active agent in all acts of willing and doing.

The advantage of the Copernican system lies in this, that we can think of the motions of the sun and the planets in a systematic and unitary conception without being either involved in contradictions or obliged to invent mysterious qualities in the stars for explaining the velocities, directions, or other phenomena of the celestial bodies. The most important advantage however is the practical applicability of the new theory.

The old theory of the soul necessarily leads to mysticism. Fictitious facts of a transcendent character must be invented in addition to the facts observed, in order to explain the latter. The new theory after abandoning the ego-centric standpoint of the thing in itself of a soul shows the facts of psychic life in an harmonious and unitary conception. All facts agree among themselves and we are not in need of supplementing them with mysterious inventions. It must be emphasised, at the same time, that the new conception throws a new light upon ethics; it shows the error and perversity of all egotism, for it would be a mistake to act as if the ego were really the centre of soul-life.

Here the new psychology comes in contact with religion. What is the practical aim of all the great religions of the world but a surrender of the ego, a renunciation of the self as the centre of our being, and the acceptance of the moral law as the regulative power of our actions? The new psychology gives a justification and a scientific explanation of Christian ethics while the latter from the standpoint of the old psychology necessarily appears as mystical and supernatural.

IX. PERSONALITY AND EVOLUTION.

The ego, i. e. the centre of consciousness, is constantly shifting, while the personality of a man is relatively constant, certain important ideas being stable and thus lending character to the whole system of thoughts and intentions.

The term personality indicating the selfhood of a man is used in several ways. First, we understand by a man's personality his bodily appearance; secondly the whole system of his mentality, viz. his knowledge, his temperament, his character; thirdly the history of his life, past, present, and future; fourthly his position in life, his possessions, his connections, his influence, or at last we mean by it all these four items together. In all these applications the man and his personality are conceived as a unity. And they are a unity. Wherever the term unity is applicable, it is most certainly applicable here. All the many facts of the history of his life are one continuous process; all the parts of his body are parts of a system, and the world of his ideas also will under normal conditions bear a certain harmonious character. Wherever in any soul the concord among the ideas has been disturbed, a state of unrest will ensue until the peace of soul is restored in one or another way. But with the same necessity as every water surface tends to present a smooth level, so the ideas in one and the same soul tend to come to a state of agreement. As every water surface has its ripples so even that mind which has attained an undisturbed peace of soul is constantly confronted with some problems—be they ever so trifling—producing some slight disturbances in his life.

The unity of a self, it is apparent, is the inevitable consequence of given conditions. It is not something which exists outside the personality and its constituent parts, it is in the personality and it develops together with it. Mr. Conybeare supposes that "the unity of a self remains the same throughout." This is an error, and this error vitiates Mr. Conybeare's whole conception of growth and evolution. He says:

> "Properly speaking a thing can only be said to grow or develop when it remains the same with itself all through the process and unfolds therein capacities which were anyhow latent in it to start with."

The truth contained in this proposition may be expressed thus: When a thing develops, some part of it remains the same during the change, so that a continuity is preserved. Yet every change of a part of an organism—such is the intimate interconnection of all its parts—produces an alteration, be it ever so small, of the whole unity. And in the course of evolution the character of the whole thing may be changed. Think of the growth of a caterpillar into a butterfly, or of an egg-cell into a man. However, the changes in the character of an adult man will become slighter and slighter the stronger certain features of his existence preserve their sameness, although the most stable personality will, nevertheless, be subject to, at least, unimportant changes as long as life lasts.

Mr. Conybeare, like his master Professor Green and all the transcendentalists, is still under the influence of a belief in the thing in itself. The unity of an organism which is the product of the co-operation of its parts, is not some independent thing whose business it is to gather up their single activities and bring them into relation with one another. The unity of a self is the combination of all those relations which make of its parts a systematised whole, and this unity is changing together with its constituents; as a matter of fact, we have to state that it does *not* remain constant or the same with itself. Mark that I do not deny the unity of the soul, nor do I underrate the enormous importance of this unity. But I do deny that this unity exists independent of its parts. It is as much immanent in its parts as is a melody in its notes. There is as little a transcendental self-hood as a melody in itself independent of its sounds.

The assumption of a transcendental unity which throughout the process of evolution remains the same with itself naturally leads to a wrong conception of what Mr. Conybeare calls "latent capacities." The terms potential existence and latent qualities are fertile and useful ideas but we must beware not to employ them incorrectly. Any heap of iron ore can be called a potential sword. This is a mode of speaking which expresses the possibility that the ore can be changed somehow into a sword. But the sword does not exist at all, not even as a latent quality of the ore. The ore has no latent qualities of that kind. Those qualities of the ore which represent

the potential sword are very patent to everybody who knows the art of using them properly and changing them into an actual sword.

We may say that the hen's egg contains a potential chick ; but this is a mere mode of speech devised to say that the egg can be changed into a chick under certain conditions. There is no chick at all contained in the egg and nothing that is like a chick.

Evolution is not, as the name suggests, a process of unfolding ; evolution is, as Christian Friedrich Wolff calls it, an "epigenesis," i. e. the process of the additional growth of new formations. The chick is something different in kind from the egg. The unity of the egg-cell organism in the yolk is radically different from the unity of the full-fledged chick. The former shows traces of irritability but not of consciousness, while the latter exhibits unmistakable symptoms of psychical activity. The formation of the chicken-soul is a new formation as much as the growth of feathers. The feathers of the chick are an additional growth ; there are no latent feathers in the egg. We might express ourselves to the effect that the egg contains the potential existence of feathers, but with the same logic we might say the egg contains a potential chicken broth.

It is however true that something remains constant in the process of growth. There is a preservation of form in the constant change of material particles and this is the physiological basis of memory, so that a man of eighty may say "I remember when I was a child," although not one particle of the substance of which the child consisted is left in him. The continuity produced through this preservation of form makes growth and evolution possible.

The preservation of memory-structures constitutes the possibility of reviving the feelings of the past, it constitutes a preservation of soul. The material parts of the body are thrown out but the form being preserved, the soul remains. And this preservation of the soul is the basis of its additional growth through new and enlarged experience. The soul of the child is not lost in the man, it is preserved. It has lost certain features and at the same time it has gained new features, it has developed, and the unity of the soul has more or less changed with the development.

What is true of the individual is also true of mankind. Man-

kind as a whole is different in the savage and in civilised society. Nevertheless the latter has developed from the former. Certain traits have been dropped, other radically new features have appeared. That which was valuable in the soul of primitive man is not lost. The better part of his soul still lives in the highest developed man of to-day; the continuity is preserved. And to-day all our moral instruction aims at this, so to live that our souls also will be preserved in the future evolution of humanity. The gist of ethics is to make the soul immortal.*

X. PROFESSOR MACH'S POSITION.

The problem, "Are there things in themselves?" is closely connected with the subject of my discussion with Professor Mach. Professor Mach as well as myself are aspiring to arrive at a consistent and harmonious or unitary world-conception. Both of us recognise that things in themselves have no room in a monistic philosophy, both of us recognise that concepts are means only of orientation, they are the mental tools of living beings developed as an assistance in dealing with the surrounding world. They are symbols in which the processes of nature are copied and imitated and which can serve for planning or modeling and thus predetermining the course of nature. So far we agree, but then there appears a difference which it is difficult for me to understand or formulate in precise terms.

Professor Mach objects to the dualism of motion and feeling, which he declares he conceives as a unity not as a duality. But so do I. It appears to me that we must differ somehow in the method of constructing the unity. I see indeed a contrast of physical and of psychical. This contrast, however, in my conception does not belong to the object but to the subject. It is a contrast of our conception of things, but it is not a contrast existing objectively in the real things themselves. The world is not composed of the psychical and the

*The abandonment of the ego as a metaphysical being is not, as it appears to many, a surrender of the soul or of its immortality. That the immortality of the soul from the standpoint of modern psychology is preserved, that it appears in a new light, grander and nobler than before, and that this conception of immortality is of an enormous practical importance, have been the main incentives of Mr. E. C. Hegeler in founding *The Open Court* and *The Monist*.

physical, but certain features of the world are called physical, and others psychical. Both terms are abstracts.

Professor Mach said in his first article and repeats it again in the present article that his former standpoint resembles very closely my present standpoint. When reading Professor Mach's lectures of 1863, I took pains to look for the similarity, and finding many things in which I could agree I dropped the differences taking the agreements as the essential points. In reading, however, Professor Mach's résumé of his former position as stated in this present article, I find that he attaches prominence to several points which I cannot endorse. I do not accept the theory that atoms feel, that they are endowed with consciousness. I have never spoken of atoms when dealing with psychological problems. The term "atom" is a chemical term invented as a help for thinking the equivalence of the weight of the elements which always combine in definite proportions. The term "atom" has in my opinion no sense if applied to other phenomena. The term "atom" has not been abstracted from psychical phenomena nor has it been invented for describing them. There is accordingly no probability that it can find there any appropriate application. We might as well expect that mathematical terms such as lines, points, circles, etc., are applicable in psychology. The idea of conscious circles or points can not in my mind be more absurd than that of conscious atoms. The rule must be observed that we can use abstractions made for a special purpose for that purpose only; they will not serve any other purpose as well. It is true that they are often employed as analogies, but in such cases, we must bear in mind that we are dealing with mere analogies.

In addition to the impropriety of using the term atoms in psychology, it appears to me erroneous to attribute feeling or anything like feeling to physical processes of any description. Natural processes are so constituted, that under certain conditions, such as take place in animal organisms, they will develop feelings. Clifford speaks in this sense of the elements of feeling. Lloyd Morgan calls it metakinesis, and I find that feelings being simply states of awareness represent the subjectivity of natural processes. We have reasons to suppose that in the processes of unorganised nature this

subjectivity is neither feeling nor anything like feeling: but the subjectivity of the natural processes is as it were the stuff out of which our own feelings are formed.

I accept all the arguments of Professor Mach that our ideas are artificial products; and I am also anxious to distinguish in our ideas between that which describes facts and that which has been added to the description of facts in shape of theories or conjectures.

The sense-pictures of objects and ideas also are not things but images and symbols of things created for the purpose of representing things; they are as Prof. Lloyd Morgan says, "constructs." But these constructs are not mere fancy, they are not air-castles. They are constructed in order to imitate certain realities. Now, in building these constructs as an imitation or a copy of reality, we are often at a loss how to build them. There is for instance in the objective reality observed, a something somewhere high in the air, the basis of which is invisible, and being limited in our means of acquiring information we are ignorant of the real state of things. So in reconstructing or imitating the facts, we build scaffolds to support it, and we are too apt to forget that these scaffolds do not represent objective facts but are artifices to make certain facts, which we know in parts only, thinkable, i. e. representable without breaks in mental constructs.

XI. TRUTH IN MYTHOLOGY.

There is one point which I have emphasised and which it appears to me Professor Mach neglects, namely that our noumenal world of ideas has an objective meaning. The ideal constructs represent realities. They do not consist of scaffolds alone and there is no scaffold which has not been erected to help in building up representations of facts. Let us call the representation of facts positive science or simply truth and the scaffolding the mythology of science, and we shall see that the road to truth leads everywhere through mythology. Certain facts of the surrounding world impress themselves upon a sentient being and these impressions come to represent facts. These facts are not seen at once in their causal connection, they appear unconnected among themselves, and in the attempt

to formulate them, to represent them, to construct them in mental images, we fill out the gaps of our knowledge with such inventions as are supplied by analogy.

Mythology is, in religion as well as in science, the indispensable ladder to truth. We cannot build without scaffolds. So we cannot construct truth without mythology. We have to introduce allegorical expressions in order to fill out gaps with analogies.

Mythology becomes fatal to the building up of truth, as soon as we consider it as truth itself. The scaffold is erected simply as an assistance for building and if the building is finished the scaffold should be torn down. The progress of science which is so much helped by mythology has periods of purification in which the mythology is discarded. This is sometimes a difficult task, because the very terms of science are mostly both at the same time truth and mythology, building-stones and scaffold.

Take, for instance, the term atom. The chemist observes that the elements always combine in certain proportions and formulates the law of the equivalence of their atomic weights. In order to think this process, to reconstruct it in mental images, he imagines that matter consists of infinitely small particles of constant weight. This is a fiction useful for its purpose but it may be just as erroneous as the method employed in the infinitesimal calculus of thinking of a continuous curve as consisting of a broken line of infinitely small parts, or of thinking of a certain force as being composed of a parallelogram of forces. The parallelogram of forces is a scaffold helpful for representing in mental symbols the coexistence of different abstractions of the same kind (e. g. motions of a different velocity and direction). But this scaffold is not a mere scaffold, it is not erected without any purpose, its final aim is the description of facts.

The proposition to consider light as rays traveling in straight lines is a scaffold, it is mythology ; but this analogy contains a truth, it contains a real building-stone which should not be torn down with the scaffold. This truth is one-sided ; it represents one feature of light and disregards other features. It disregards entirely the transversal oscillations of the ether, yet it describs another feature—viz., the transmission and refraction of light for the comprehension of

which we need not take into consideration the undulation theory. The physicist calculates with his formula $\sin\alpha/\sin\beta = n$ the angle of refraction. There is certainly neither a sine α nor a sine β in reality, but there are certain relations of reality which are described in these expressions and the action of the light has a definite quality which can be determined with the assistance of the formula $\sin\alpha/\sin\beta = n$.

If the scientist succeeds in determining such real qualities of things, even though it be done with the assistance of mythology, he discovers a truth. He has with the help of his scaffolds succeeded in placing a building-stone where it belongs.

Some scaffolds have to be torn down because they hinder further building; other scaffolds must remain because they assist us in modeling, and planning, and predetermining certain processes of nature. They are like staircases which enable us to reach with ease otherwise inaccesible places on towers or domes.

* * *

The idea that science is full of mythology appears strange to the non-scientific, and it is often overlooked by scientists themselves. But the idea that religious mythology in spite of its many irrational superstitions and wrong analogies beams with truth is also little heeded by the many. In fact, man's method of reaching truth is the same in religion as in science.

The religious ideas such as God and soul are mental constructs which copy certain realities; but these very terms, such as they are used, are mythological expressions; they are still surrounded by their scaffolds. Many people know by their own experience the usefulness and indispensability of the scaffold. Without the scaffold they would never have had an inkling of the truth, for the representation of which it was built, and it is natural that they consider the scaffold as the building itself. This is the reason why the narrow-minded orthodox denounce anyone who would lay hand on or tear down any part of the scaffold, which has become a hindrance to the further development of religious ideals.

Positivism, i. e. the representation of facts without any admixture of theory or mythology, is an ideal which in its purity perhaps will never be realised. Nevertheless it is no *ignis fatuus*, no will-

o'-the-wisp that leads us astray. Our science is constantly more and more approaching this ideal and the progress of humanity is intimately connected with it.

Science has not merely a theoretic value, its aim and purpose consist in its application to practical life. Science is throughout ethical. Thus ethics has also its mythological phase. In agreement with Professor Mach (p. 204), we should find it ridiculous if one who presumes to be an ethical teacher of mankind would say:

"Man *must* not be descended from monkeys," "The earth *shall* not rotate," "Matter *ought* not everywhere to fill space," "Energy *must* be constant," and so on.

Why is it ridiculous? Because we cannot prescribe a certain deportment to facts. It is however not ridiculous to let a precise and carefully sifted knowledge of facts determine our own deportment.

Science has to teach ethics. But here also we should distinguish between positive facts and mythology. Ethics based upon mere theories, upon our interpretations of nature which we add to facts, is mythological; positive ethics is simply that deportment which is suggested by a comprehension of the facts themselves.

Mythological ethics may be quite correct, just as much so as the application of a mythological theory of science may be within certain limits reliable as a working hypothesis. But it is desirable to understand the nature of mythological ethics in order to distinguish between truth and fiction.

When Professor Mach speaks of sensations as being the elements of the world and of things as being complexes of these elements he apparently does not use the word sensation in its usual sense. It has ceased to be an abstract term which represents one feature only of a process of nature and has become a symbol for an entire reality. And is not such a usage of terms as if they were not abstracts but the things themselves liable to lead to misconceptions?

Professor Mach's "elements," it seems to me, are only elements, i. e. ultimate and unanalysable materials, if considered as terms of a psychological view of the world; they are not elements in the domains of other abstractions, such as are made by physiology or physics. Moreover, although this method eliminates the duality of

soul and body, mind and matter, feeling and motion, it does not explain the problem.

Professor Mach might answer that the problem as to the duality of mind and matter is a sham problem, just as much as the problem why do we see things upright when the retina picture of the eye shows the things inverted? But a problem is to him who has solved the problem always a sham problem. Every problem disappears as a problem as soon as it is solved. It is true that we see as little with the blind spot of the eye as with the skin of our back. The problem of the blind spot is not why do we not see with the blind spot, (which is simply a matter of fact,) but why do we not notice, when using only one eye, its lack of sight in a spot surrounded with sight-seeing structures? We have to employ artificial means to convince ourselves that we are really blind in that spot!

All problems are merely subjective; they are a conflict between two conceptions and as Professor Mach himself says, the solution of problems consists in the adaptation of thought to facts, i. e. to new facts or new views of facts. By an adaptation of our thought to the enlarged field of vision the problem vanishes; it has ceased to be a problem. In fact it never existed as an objective phenomenon. There are no problems in nature. There are problems only to the investigating mind. But even the formulation of problems is a problem to be solved, and perhaps the most difficult and subtle kind of problems is to discover the flaw in wrongly formulated problems.

The problem of the duality of body and soul, matter and mind, feeling and motion, ceases to be a problem to him who has worked his way through to a monistic conception, but to those who have not as yet succeeded in establishing a unitary view of these ideas, because they take them to be separate and distinct existences, it is a problem of great importance.

XII. THE ONENESS OF SUBJECTIVITY AND OBJECTIVITY.

The world is not rigid being, but activity, not absolute existence but a system of changing relations, not an abstract *Sein* but a concrete *Wirklichkeit*—a constant working of cause and effect. There is no dualism in this, for the *Wirklichkeit* is one and undivided.

Yet every relation admits of two standpoints, just as the line *AB*, which may serve to represent a certain and definite relation, is determinable from both ends, *A* as well as *B*. Let us call *A* the subject and *B* the object. Neither *A* nor *B* is a reality, a whole complete *Wirklichkeit*. A thing in order to be real must be active, it must work, it must stand in relation to something else. *A* is a mere mathematical point, but *AB* representing a process does something, it performs work, it is real. A thing in itself, if it could exist at all, would be tantamount to non-existence, it would represent a *Sein* without being *Wirklichkeit*. When bearing this in mind, it appears natural that the oneness of existence, representable in such relations as is that of $AB=-BA$ will admit of two standpoints, *BA* representing subjectivity, and *AB* representing objectivity. We can consider the relation of the world at large to one special point (which latter may in its turn stand for a whole system of relations) or vice versa the relation of this point to the world at large. The former standpoint is that of the microcosm, or the soul, the latter that of the macrocosm or the universe; the former results in awareness, the latter appears as matter in motion. The former is subjectivity, the latter objectivity.

Reality must not be conceived of as being a compound of the elements of feeling and of motion, of subjectivity and objectivity or of kinesis and metakinesis. I do not think there are atoms one-half of which contains the potentiality of sentience while the other half is freighted with energy. I conceive of reality as being one throughout, but, being throughout resolvable in relations, it will as a matter of course have two sides. What these two sides are like can be known through experience only, and experience teaches that under certain conditions the subjective side develops into feeling and consciousness, while the objective side is represented in the feeling of conscious beings as motions.

This view explains the duality of our conception of psychophysical facts, but it is certainly not dualism. The duality belongs to the scaffold not to the facts themselves. The facts can only be thought of as being one and undivided, and no conception can stand except it be monistic.

Subjectivity and objectivity are terms that express relations and not things in themselves. There are, however, philosophers who show a great grief unless either the subjectivity of being, or the objectivity of being, or the unities in which things or personalities are gathered up, are considered as things in themselves. All those features of reality which appear to their conception unexplainable, such as the relations that obtain among things and especially the thoughts of thinking beings are supposed to be the effects of some transcendental entity, of a thing in itself. And if a philosophy denies the existence of transcendentalistic thought-entities or of any such things in themselves, which serve as cement to combine the *disjecta membra* of their world-conception, it is generally declared to lead straight on to nihilism—not because the world itself but because their world-system would thereby be annihilated.

All things that exist, if considered as separate things, will pass away; but if considered as parts of the all-existence of reality, they are eternal. In fact things are not separate things, in the sense of isolated, absolute, or abstract beings, although we may speak of them as such for our ephemeral purposes. All things that exist, the human soul included, are and will remain parts of the One and All.

This destroys their individuality as little as a brick ceases to be a brick because it serves its part in the building of a dome. The soul of a man if his life be well spent, is not annihilated in death, his soul has become a living stone in the temple of humanity. It continues to live and marches on in the general progress of the race.

We are parts of a great whole now, and we shall remain parts of the same great whole forever. We have never been and shall never be transcendental selfhoods or metaphysical egos, or any kind of things in themselves. Our personality is real life, it is actual being. As such it is bound up in the universal life of the One and All and no particle of it will be lost. We need not fear death, for the air we breathe is immortality.

EDITOR.

LITERARY CORRESPONDENCE

I.

FRANCE.

THE recent work of M. F. Paulhan, *Le Nouveau Mysticisme*, places us in the presence of a feature of modern life, if not extremely important, at least very curious.

We assist at the formation of a new spirit. But what is it? What is its value? A reply to this question would exact a long and minute analysis of all social facts. M. Paulhan does not flatter himself that he has exhausted it, and he offers us only portions, although excellent and instructive, of the required work. He shows us in rapid review, the dissolution of the ancient world, the intellectual and moral anarchy which has to-day reached its highest possible point; he seeks, in the ruins amidst which we tread, the constructive elements of a new order of things, and makes an effort to foresee what it will be.

"The scientific mind," writes he, "the religious spirit, pity for suffering, the sentiment of justice, social mysticism, the attraction for mysterious perhaps dangerous facts that we begin to have a glimpse of, the kind of new power which the knowledge of them can give us, a general need of universal harmony: such are the principal characters of the spirit which is forming itself." They are not, he himself says, all new. It is not the presence of these elements which is significant, but rather the singular combination in which they occur, and we could say, the precipitate that they give in the particular chemical solution where they find themselves thrown. In

every case, the phenomenon does not affect entirely, it seems to us, the same characters, according to whether we observe it in the philosophic or scientific order, in the practical order, or in that of sentiment, which literature represents. The name of mysticism does not belong to every part of the new spirit equally; or more exactly, the spirit which is produced could well not be truly mysticism, but only a side phenomenon, and the very evident resurrection of the spirit which is disappearing.

M. Paulhan, if I do not deceive myself, sometimes allows himself to be too much influenced by a certain literature, to which I do not allow a very great value, and of which even the sincerity may be suspected It represents at first, to my mind, individual conditions, and it evidently impeaches some authors of a morbid diathesis. Many of our prophets, as is known in the *Quartier Latin*, have or affect vices which exclude by themselves all generating power. Then, it is very difficult, in our age, to appreciate exactly the relations of literature to the public mind, seeing the diversity of romantic books, and the correlation of one to the other is perhaps not so strict, so profound as it has been in other junctures of history. In short, the modern romance is a document the relative value of which needs to be established by a most severe critic.

Some facts dominate the question, viewed as a whole. It is necessary to show the work of the scientific mind, which has the result of creating new mental habits. It is necessary to consider also that the disorder, *the spirit of evil*, so finely analysed by M. Paulhan, corresponds chiefly to the interpretations of ignorance, to the exaggerations of sentiment, and to the dreams, more or less monstrous, of inventive fantasy. It is necessary, finally, if they wish to augur of the future, to endeavor to disengage the laws of construction, still badly defined, of our political fabrics. The thought of M. Paulhan is good at bottom, and the materials with which he constructs the *possible future* are taken from the positive conditions of our mental and social life: in the practical order, "co-operation" is added to the social systems already existing, although disturbed, such as the family and the nation; in the ideal order, the conception, beyond that of humanity, of a "cosmical whole," and a "uni-

verse," which, to repeat it after Comte, will be favorable to man, in a certain sense, seeing that he causes it to exist.

We recommend the reading of this book. One's time is never lost with a thinker of the stamp of M. Paulhan; he has the merit this time of disclosing to us in a few pages a vast horizon, where some points are delineated with clearness. Logicism has caused much evil in our country. Let us now beware of mysticism!

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One of the most curious episodes of this new mysticism is assuredly the Buddhist preaching, begun in France by a small group of writers. M. Augustin Chaboseau, one of the representatives of this religious tendency, publishes a work, *Essai sur la philosophie boudhique*,* which it is expedient to mention. M. Chaboseau has thought it would be of interest to sum up in a volume the results of the studies on Buddhism, and to present it "such as science has proved it, that is to say very different from what Christian polemists, worldly amusers, theosophic fanatics, endeavor to disseminate." He has had the ambition to write this volume, and for my part, I do not refuse him my curiosity.

But that Buddhism truly contains a religious formula capable of attracting to it the souls of our Occident, I have difficulty in believing. This India is very far from us, and its confused philosophy is behind us. I do not think that the nations of to-day will return to a by-gone mode; and then, this doctrine of Sakya-Muni has something against it, that I hesitate to say, as it might seem puerile: its god is too fat. Its god or its sage, as you wish. Yes, that breadth of form, that opulence of flesh, taken as a mark of goodness and power, shocks our artistic taste. Do not forget that every religion which claims our will ought to satisfy our æsthetic sentiment: it is one of the essential factors of the religious sentiment, a compound sentiment where all the emotions of a race ought to find their harmony. The opposition of India to us, so striking in the ideal of the beautiful, still continues in metaphysical speculation. We are too

* Georges Carré, publisher. The other works mentioned in this article belong to the *Librairie Alcan*.

moderate, too sober, for the debauches of imagination in which it delights. Buddhism will be to us only a passing excrescence, and I ask myself if it lives well in the souls where it has sincerely penetrated.

I should have much to do to speak, in the briefest manner, of all the books or treatises, which in a direct or indirect manner relate either to the war of Aryanism against Semitism, and principally against the Christianism in which certain authors see the most disastrous conquest of Semitic genius; or to the reviving of mystic traditions, strange dreams, and monstrous desires; or to a religious restoration, of which the most ordinary prejudice is to assure the immortality of the soul and to reopen the beyond to man. These works are in general of slight value; they are the multiplication of decays, and we are compelled to consider them as social wastes, of which the abundance betrays unquestionably the bad health of the organism, or at least a difficult crisis of its evolution.

* * *

But let us return to the works of philosophy properly so-called. What are we to think of that of M. F. Rauh? I deceive myself much if his *Essai sur le fondement métaphysique de la morale* is considered of much service in his own circles. M. Rauh, who belongs to the philosophic youth, the youth of the age, can be well assured that the partisans of scientific morality will not upbraid him for "the admiration of high metaphysical thoughts" with which he does himself honor, but he can fear lest the metaphysicians accuse him of further compromising metaphysics by the denser obscurities he casts on it. One is stupefied to find again in a modern book a phraseology so made up of abstract words, of substantives with capitals, and logical shadows which affect the posture of realities. Much study, much work, without advancing one step, and still worse, in order to throw us again into the *culs-de-sac* from whence we have had so much difficulty to disengage ourselves. All the profit one can derive from this dialectic is to contemplate at the end the vague shadow of its own body that is perceived on the wall.

The metaphysicians of a certain school are not only reluctant to have to accept that morality is a natural formation, a social pro-

duct, an historical fact; they wish further that the existence even of moral society should depend on the intelligence that they have of it, or of the explanation that they give of it. They affirm boldly, and these are the words even of M. Rauh, that "the fate of morality is united to that of metaphysics"—their metaphysics. This is a pretension as exorbitant as would be that of a naturalist who should refer the reality of the animal world to the idea he formed of zoölogical types, or that of a chemist who should subject the value of the positive results of science to a particular hypothesis as to the constitution of bodies.

* * *

There are certain difficulties of language to criticise in the work of M. Isidore Maus, barrister in the Court of Appeals at Brussels, *De la justice pénale, étude philosophique sur le droit de punir.* A curious spectator, he tells us, of the battle waged between the new school of anthropology and the ancient penal jurisprudence, he seeks to divine the issue of it. It will probably end, according to him, in the formation of a medium penal jurisprudence, which will accept limited responsibilities, and which, while protecting society, will do its best "to give to punishment all the advantages it can."

It would be exaggerated no doubt, I willingly grant it, to take away from repression every mark of moral reparation, all weight of "reformative power"; but I am always shocked to hear partial responsibilities spoken of.. From the social point of view, the responsibility remains perfect; it is united, indeed, to the very act of having caused injury, beyond all appreciation. From the point of view of the individual, the word responsibility has the grave inconvenience of implying that the quantity of liberty or freewill attributable to the delinquent is measured. It would be less compromising and more exact, to value simply the quality, the worth of the delinquent, according to the totality of his affective, intellectual, voluntary, and pathological character, according to the nature and the conditions of the act of which he is accused, etc. We should thus escape contradictions of words which easily become contradictions of fact; we should no more stumble at this latent difficulty of free-

will, in medium cases—for *serious cases* are never difficult. Words exercise a tyranny which jurists would do well to distrust.

Is not this, moreover, just about what M. Maus means by his favorite formula—that justice ought "to individualise as much as possible"? It is a pity only that he does not present his conclusions with the requisite clearness. His exposition is not distinct and frank. He has mental habitudes, subtilities of reasoning, which are of value at the Palais, but which it is suitable to rid oneself of when writing a book: his would gain much by being entirely remodeled, made clear and disentangled.

* * *

M. E. DE LAVELEYE offers to the public a fourth edition, revised and considerably augmented, of his great work, *De la propriété et de ses formes primitives*. We have not to recall the numerous facts which this work contains and the knowledge of which has become sufficiently general; nor to commend M. de Laveleye, who no longer expects fresh praises for it. I have only to express the regret that he should have retained the theory of property expounded in the last chapter of his book, or rather the metaphysical conception of right with which he connects it. It seems as if he wished to excuse himself from reducing property to the simple value of a fact, modifiable in its forms, by indicating as a fixed point an "order" which shall be the best, which shall be *known* and *wished* of God, *sought* and *realised* by man.

M. de Laveleye knows it as well as any one. Right is only a rule, an expression of the relations of men among themselves, in a determined geographical and historical medium. Its changes depend, in part on external conditions, in part on the characters of man himself, the state and variable equilibrium of his passions and of his mentality. If certain forms of right establish themselves proportionally, in the course of the life of nations, the fact is explained by the constancy and the universality of certain conditions, either physical or mental; the repetition of social arrangements, which produces ultimately a more stable structure and constitutes a sort of axis of development, is somewhat analogous, if we may be permitted this comparison, to the repetition of the essential elements in all ar-

chitecture, or of the primitive forms in all the products of the ceramic art. What is the good of enveloping with mystery the ideal we create ourselves, and of rendering obscure a notion that we can positively explain? But let us leave here this little quarrel, for it does not touch the solid groundwork of the book.

Still to signalise are: *Premiers principes métaphysiques de la science de la nature*, translated from Kant by M. M. Ch. Andler and Ed. Chavannes, who have written an interesting introduction *On the philosophy of nature in Kant;* and *L'Année philosophique, Ire année* 1890, published under the direction of F. Pillon, former manager of *La Critique philosophique.* There will be found in this last volume two profound studies, one by M. Renouvier on the phenomenist method, the other by M. Pillon on the criticism of the infinite, an excellent article by M. L. Dauriac on philosophy and particularly on the æsthetics of Guyau, finally a bibliography of French works which appeared in 1890. I wish good success to this publication; it will become valuable, and it will be still more so, in my opinion, if M. Pillon, will not recoil before the fatigue, no doubt sufficiently great, of adding to the Bibliography a critical sketch of the review articles published in the course of the year.

Lucien Arréat.

II.

RECENT GERMAN WORKS IN PSYCHOLOGY.

A well-known alienist, Professor Pelman of Bonn, in a recently published work, advanced the assertion that the literary taste of the day pointed to a considerable decline of the intellectual health of the present generation. To him who assumes with Pelman some causal foundation of this state of affairs, it is indeed an alarming sight to pass in review the show windows of our great book centres Leipsic and Berlin and to discover the great number of editions that the products of the literature of a certain class are passing through.

Among the books that are at present all the vogue, Tolstoï's "Kreutzer Sonata" stands in the front rank. Numberless articles in the newspapers and the magazines have already made this wonderful work the subject of discussion, both from the æsthetical and from the moral point of view. Now comes a physician, who discusses the psychological aspect of the story, and discusses it in a manner which must claim our interest and to which in the main points it emphasises we cannot deny our assent.

Dr. H. Beck has published at the house of Rauert and Rocco of Leipsic, a brochure bearing the title *Des Grafen Leo Tolstoï Kreutzer Sonate vom Standpunkte des Irrenarztes*, and arrives on the basis of a careful analysis at the result that Tosdnischew is a decidedly neuropathical character. Now as Tolstoï, on his own express declaration in his concluding remarks, places his own views in Tosdnischew's mouth, this judgment respecting the principal character of the story also holds good in great measure of its author. Generally, indeed, Beck is very considerate towards Tolstoï's person, in the expression of his opinions; but he is nevertheless very plainly outspoken when he says at the conclusion of his little book: "Let us characterise this monstrous product, the 'Kreutzer Sonata,' as that which it appears to every person of sound sentiments—as the emanation, namely, of a diseased brain, of a degenerated Psyche."

The Munich physician Dr. Puschmann, who in the year 1873 in a special treatise represented Richard Wagner, then still alive, as psychically diseased, has thus found, as we see, in a certain sense a successor in Dr. Beck. But while Puschmann's pamphlet, having been occasioned by certain conditions of affairs in Munich, was written in a hostile spirit, and while the little book of Beck's makes no secret of its author's aversion to Tolstoï and his works, a notorious representative of unhealthy "young Germany," the novelist Wilhelm Walloth, meets at other hands with an uncommonly tender treatment. There is indeed nothing remarkable in this, for if anyone is in need of tender treatment it is a man who is sick. But it is very remarkable that the diseased state of a nervous system should be accredited to the writer Walloth as a great poetic excellence.

G. Ludwigs, the author of the treatise *Wilhelm Walloth*, Leip-

sic, 1891, Verlag von Wilhelm Friedrich, had in so far the advantage of Puschmann and Beck, that he was not placed under the necessity of originally demonstrating what the actual state of the nervous system of his hero was, from his works. This condition had already been established by expert physicians in a much talked of trial before the District Court of Leipsic for circulating obscene publications. Ludwigs was able therefore to proceed immediately with his problem of ascertaining the extent to which a diseased state of the nervous system had effect in Walloth's novels and poems. His discussion of this last question possesses great interest for the psychologist, although the reader will find considerable difficulty in accommodating his thoughts to Ludwigs's occasionally very singular style. Setting aside the odd expressions of Ludwigs, we may say that there is exhibited in a pre-eminent degree in the writings of Walloth, first, what the physicians call hyperæsthesia, and by this is meant not only an excessive sensitiveness of the senses but also—a condition that is connected with the last—an extraordinary intensity of the emotional activity. Secondly, are found numberless bold associations of ideas which are much better known to the physician than to the æsthetician.

Unfortunately Walloth is not the only one of the representatives of "young Germany," in whose works the characters of disease appear in such intensity, and the circumstance that books of this class are bought in such numbers and read in still greater, places the tastes and sentiments of a large portion of the educated German public in a questionable light.

If we turn our glance away from the sensational phenomena of literature to the phenomena of ordinary life, which are not uncommonly enacted in the halls of justice, it is in first rank the incorrigible swindlers and sharpers that excite our attention. We have received on this subject from Dr. Anton Delbrueck, a physician of a Swiss insane asylum, an interesting little work bearing the title *Die pathologische Lüge und die psychisch abnormen Schwindler*, Stuttgart, 1891, Verlag von Ferdinand Enke. In this book the author makes an investigation of the gradual transition of a normal psychological process into processes exhibiting pathological symptoms, and shows,

in so doing, by ample material, that in every kind of intentional deception the consciousness of intention can exhibit very different degrees of intensity and can imperceptibly sink in a succession of cases to zero. As a matter of course, Delbrück's treatise is primarily of interest to medical experts and lawyers, but it will also be of interest in a secondary degree to all circles that devote their attention to psychological studies generally, particularly so to educators who have not infrequently to do with pathological lies, as G. Stanley Hall quite recently pointed out in a very instructive article in *The American Journal of Psychology* on the lying of children, and as is developed in the work of Dr. Sollier, before mentioned in *The Monist*, entitled *La psychologie de l'idiot et l'imbécile*, which is also to be had in a very good German edition, translated by Paul Brie, under the title *Der Idiot und der Imbecille*, published by Leopold Voss of Hamburg.

In the German edition of Sollier's book Professor Pelman, whom we have above mentioned, has written an introduction in which he speaks of the work in words of praise similar to those expressed by Lucien Arréat in *The Monist*. "Sollier," says he, "has put us into the possession of a psychology of mental imbecility, in a completeness in which hitherto it was not at our disposal." Then follows another passage which we will also quote, as it forms an important supplement to the remarks of Arréat. It is this: "Imbecility had remained the step-child of the science of psychiatry and has not by any means met with the consideration which in view of its social importance is due to it. If we go through the works, as great in number as they are in voluminousness, which have been published in the style of Lombroso on criminals and their peculiar characteristics, we shall be unable to escape the impression produced in our minds that the characteristics of imbeciles portrayed by Sollier recur point for point in the typical criminal. Here as there, the same insufficiency of all ethical development, the same frivolity, and the same incapacity for being of use in society exist. That which in Sollier's explanation decides the whole anthropological position of the imbecile—his anti-social, society-hostile attitude —is emphasised by all writers as the characteristic trait common

to all criminals, and the description of imbeciles and criminals coincides as completely in this respect as if the same individual had sat for both pictures. The conclusions that follow from this can only enlist new adherents in the ranks of the anthropological school, and this result also I should place to the profit-account of the present book."

However profitable and necessary employment with the diseased states of the human soul may be, personally at least it is an unpleasant subject for us, and we are glad therefore that we may abandon this domain for the present letter.

The occasion of this is afforded by a valuable gift from Prof. W. Preyer, formerly of Jena, now of Berlin. Professor Preyer has presented us with a rather large volume bearing the title *Wissenschaftliche Briefe von Gustav Theodor Fechner und W. Preyer. Nebst einem Briefwechsel zwischen K. von Vierordt und Fechner sowie mehreren Beilagen. Mit dem Bildnisse Fechner's und vier Holzschnitten.* Hamburg und Leipsic, 1890. Verlag von Leopold Voss. The work contains a correspondence extending from the year 1873 to the year 1883, in which the two distinguished scientists discuss (chiefly) myophysical and psycho-physical questions, and will be of great interest to many readers of *The Monist*, especially as it makes its appearance simultaneously with the issuing of a new edition of Fechner's *Elemente der Psychophysik* by Wilhelm Wundt.

The much fought over and much disputed province of psychophysics has also been entered on by a younger psychologist, who has already acquired a considerable name,—by Hugo Münsterberg, docent at the university of Freiburg in Baden. In his *Beiträge zur experimentellen Psychologie*, which are published in parts at indefinite periods by Mohr of Freiburg in Baden—three parts have already been published—Münsterberg raises, in the first place, a vigorous protest against Wundt; repudiating on the basis of the results of independent experiment the apperception hypothesis which has been propounded by the scientist mentioned, and producing proof that all kinds of so-called apperception are reducible to associations of the representative activity. Secondly, he offers us in the third part a new foundation on which to base psycho-physics.

It is, of course, impossible, in so difficult a subject, to reproduce briefly yet clearly the developments to which Münsterberg devotes one hundred and twenty-two pages. But we will at least supply a few hints with regard to what this new foundation of psycho-physics is.

In the first place, Münsterberg rejects the notion that prevails with Fechner and his school, that a powerful sensation is a multiple of a weaker one, by which the first can be measured. The stronger sensation is, says he, in comparison with the weaker one something wholly new; for, accurately considered, the intensity of a sensation is also of a qualitative nature. However, we are not by any means at liberty to infer from this that the measurement of psychical quantities is impossible. To appreciate this, it is first requisite that we should get clear ideas with respect to the psychological foundation of our physical measurements. The only foundation of these last is our muscular feeling, to this extent, that all measurement is founded on the measurement of quantities of space, time, and mass, and any estimate of the latter is only possible on the basis of the muscular feeling that enters as a factor in the conceptions involved. All physical measurement rests on the establishment, and therefore reproduction, of *like* muscular sensations; on exactly the same foundation rests also all measurement of psychical quantities, of intensities of sensation, and since this foundation is the same, for this very reason the same justification is due to the measurement of psychical intensity as is due to physical measurements. This is the foundation on which the psycho-physics of Münsterberg is raised, which for a fuller view must be studied in the third part of the "Beiträge" itself.

Altenburg, November, 1891. CHR. UFER.

DIVERSE TOPICS.

THE CLERGY'S DUTY OF ALLEGIANCE TO DOGMA AND THE STRUGGLE BETWEEN WORLD-CONCEPTIONS.

A LATE number of the *Gegenwart* of Berlin (Vol. xl, No. 30) contained an article by Mr. Eugene Schiffer, a German justice, on the subject "World-Conception and the Office of Judge," in which attention was called to the fact that the performance of duties, not only in the pulpit but in all the professions, and prëeminently in the dispensation of justice through the courts, depends upon and stands in a more or less close connection with some definite world-conception; thus showing that religion of some kind forms and must form the background of the practical life of society. He says:

"The Church demands of its disciples as an indispensable condition of serv-
"ing her the confession of a certain world-conception; she requires that every one
"who intends to take upon himself her rights and duties, should in his inmost heart
"agree with her concerning the contents of her faith, especially concerning the
"dogmas on eschatology, on God and world, body and soul, the origin and end of
"things; and this is but a matter of course, for the essential part and also the foun-
"dation of her activity lie in these very doctrines and in their propagation. It is a
"hard and a severe demand. Although on the one hand the morally free fulfilment
"of her requests contains the germ of an harmonious development of life and prom-
"ises an extraordinary concentration and elevation of all faculties, it leads on the
"other hand to serious conflicts, of which the pages of history not less than the ex-
"periences of our daily life exhibit innumerable and sad instances. We recollect
"the terrible spiritual struggles in the souls of those who commenced to doubt, and
"the outcome is generally a pitiful catastrophe, either submission and hypocrisy
"with the weak, or tribulation, renunciation, and ruin with those who thought higher
"of truth than of their worldly emoluments.

"Most of the other professions and trades know nothing of the indispensability
"of a certain world-conception. The merchant, the mechanic, the lawyer, the
"soldier, the teacher, the laborer, can upon the whole think concerning these high-
'est problems of life as they please. An inner and ideal conflict between their

"views and their calling seems definitely excluded. Outer and practical conditions "—such as administrative injunctions of a certain kind, the aspiration of progress, "the ambition to be better off, etc.—may sometimes produce conflicts.

"Yet this character of indifference concerning a general world-conception which "is found in the secular professions and trades does not bear the stamp of perma- "nence. For ultimately the entire doing and achieving of every thinking man, so "far as it rises above the mere vegetative functions, is intimately connected with "that common world-conception which everywhere influences and guides him. This "is unnoticeable so long as the harmony of the connection remains undisturbed, "but it manifests itself in consciousness as soon as its harmony is threatened through "some important change of any of its parts. Even to-day a deep-going change "is preparing itself; even now the struggle about the world-conception is fought "more severely and more bitterly than ever and a new doctrine goes far enough to "uncover the ultimate roots of our civilisation, of our position in life, of our call- "ing; it attacks and shakes the present world-conception.

"This implies the possibility of a conflict between the old and the new faith "even outside the pale of the church, and this conflict may influence the choice of "a calling. This possibility has become an imminent probability concerning the "office of judge, especially the judge of a criminal court.

"The dispensation of justice rests to a great extent upon the presupposition of "guilt and the criminal law of to-day is almost throughout built upon this idea of "guilt. It is true that this view has not always been taken. The Greek law and "the old Germanic law interfered even in the gravest cases exclusively on account "of the objective state of things without taking into consideration the criminal in- "tent of the defendant. But this view was superseded in the former case by the "Roman, in the latter by the canonical law, both requiring the conception of a "moral and a subjective guilt, and at present the criminal law of every civilised "nation (with the sole exception of the Chinese who threaten with capital punish- "ment him who accidentally kills no less than the intentional murderer) rests upon "the foundation of a belief in guilt.

"But there is no room for guilt in the materialistic world-conception. Every- "thing that happens, the activity of the human soul included is to be explained ac- "cording to mechanical principles and thus the view that man's will is not free is "proposed as one of its fundamental doctrines. While in this way there is no possi- "bility left that a man might have acted differently than he actually did, this view "takes away his responsibility. And this movement which either cancels or weak- "ens the momentum of guilt, has taken hold of the minds of men far beyond the "circle of decided materialists.

"The foundation of our criminal law stands or falls with the idea of guilt. "With it stands and falls also the office of the judge, whose duty is the dispensation "and utilisation of justice. He who does not believe in the possibility of guilt can- "not without inconsistency pronounce any one guilty. He who as a matter of prin-

"ciple or at least within certain not well defined limits denies the freedom of the "human will can no longer serve as a judge, certainly not as a criminal judge."

Justice Eugene Schiffer is a conservative man. He demands that for the protection of the old world-conception the office of judge should be carefully guarded against such intruders as are not in sympathy with the present world-conception. He says:

"Exactly as the church, in order to preserve herself and to guard against her the-"ology being diluted into a watery philosophy of religion, is bound not to separate "the conditions of her life from a definite world-conception, so also justice, in order "to deserve its name, should oblige its servants to take a definite position toward "the ultimate world-problems. . . . . He who does not accept in his conviction the "moral foundations of a certain calling, must not choose it, or if he has chosen it, "he must renounce it—or he must in his profession act against his conviction—un-"less he risks being discharged from his office on account of a neglect of duties."

We agree with Justice Schiffer in one most important point, viz., the intimate connection of religion with practical life and of our world-conception with all our doing and achieving. But we differ from him in another no less important point, viz., in the proposition to prevent the present world-conception from undergoing a further growth and higher evolution. His proposition is nothing less than to make humanity and all its institutions stationary.

Everything that exists has a natural right to defend its existence, and so has the present world-conception. But that which grows and develops out of the conditions of the present existence has also a natural right to attain existence. The ideal world of the "is to be" is not a non-existence, as it might appear to the unknowing, but a germ existence, and if there is no room for both the actual existence of the present state and the germ existence of a new state, a struggle will ensue. There are at present and always have been many spurious world-conceptions which if they overcame the present world-conception would lead humanity backward to the beginning of civilisation. Indeed most propositions of reform are reversals which would undo the results of evolution and reduce mankind to primitive conditions. The fermenting minds of those who still hope to cure all the ills and woes of society by one stroke, have not yet outgrown the idea of the perfection, nobility, and happiness of the so-called original state of nature,

"When wild in woods the noble savage ran."

Yet among all the plans of reform there is one which is correct, answering the wants of the time; and among all the world-conceptions which struggle to exist there is also one which is the legitimate outcome of the present world-conception. It is the present world-conception enlarged through additional experience and purified of certain errors. And it is an often repeated occurrence in history that the old and the new, father and son, have to fight with each other. The heir apparent either does not know that he is the child of his antagonist, or the latter the defend-

ant of the present state does not know that he fights with his own son. This often repeated fact has found a mythological expression in the old Teutonic song of Hildebrand meeting in combat his son Hadubrand, a legend which in similar versions appears again in other Aryan sagas, the best known of which is the tale of Rustem's struggle with Sohrab in Firdusi's great Iranian epic.

Can the struggle between the old and the new world-conception be avoided? No, it cannot and should not, for the new has to prove its legitimacy by showing its intrinsic strength; it must show that it has the power to exist. The struggle cannot be avoided, but the bitterness, the severity, the barbarity of the struggle can be avoided. Let Hildebrand and Hadubrand measure swords in a spiritual encounter, let the vanquished ideas yield to the stronger ideas, and they will prepare the gradual change of an evolution instead of the sudden rupture of a revolution.

Freedom of thought is always the best soil for a peaceful evolution but any system that binds the consciences of men and ties their ideas down to the average level of a certain age will be as dangerous as a boiler without a valve. There are periods of instability in history when the strengthening of the conservative spirit by imposing fetters upon the consciences of men appears useful and almost a condition for the development of some kind of a civilisation. This found expression in the historic legends of Lycurgus and Solon, binding their countrymen by oath not to alter the laws of the state. But these periods are after all ephemeral, and we ought to know by this time that we cannot bid the sun stand still or check the spirit of progress and the growth of mankind. There are nations which develop slowly because they rush into innovations, but there are other nations which have gone to the wall because of over-conservatism through which they were induced to suppress the freedom of thought and to deny the right of doubting the absolute validity of the prevailing world-conception.

The proposition of Justice Schiffer to bind the conscience of the judge by an oath of allegiance to that world-conception which is at present recognised as orthodox, is actually a law in the constitution of the church, and conflicts in the consciences of clergymen are of a common occurrence. The opinion that a clergyman who has ceased to believe in certain dogmas of his church has to resign his position is very common among freethinkers as well as orthodox believers. At first sight this seems to be the only choice left to a man of honesty and a lover of truth. I held this opinion myself for a long time. There is nevertheless another view of the subject which caused me to change my opinion entirely, and I am glad to perceive that such a man as Mr. Moncure D. Conway who held himself a position in the church and having grown more and more liberal has retired from active service, declares most emphatically that a clergyman who has grown liberal should not resign but stay in the church and wait till the church forces him to leave his position. This is an honest course, a clergyman has a right to pursue it and he will thereby open the eyes of his fellowmen; he will further the interests of mankind,

and people will thus be enabled to judge better whether or not it is just to impose these burdens upon the pastors of the church.

Let us consider the case more closely. First, the oath which a young clergyman gives at his ordination is a promissory oath, and like all promissory oaths it holds good on the supposition that all the main conditions remain the same. If a man promises and binds himself by an oath to start to-morrow morning on a journey he does so on the supposition that it will be possible. So far as he can foresee it is possible, but incidents may happen which will make it impossible to-morrow. A promissory oath will be a weight on the conscience if it has to be broken, but it has no legal force. Thus soldiers swear an oath of allegiance to their king, and under ordinary circumstances there will be no cause for doubt as to the propriety of remaining faithful to the oath. But many cases of great perplexity will appear when a civil war splits a nation in twain so that brother stands against brother and faithfulness to the king may be the most degrading felony toward one's highest and holiest ideals, perhaps also toward one's bodily parents and nearest kin. Who does not recollect the sad end of Ludwig II, king of Bavaria. When the mind of the unfortunate monarch was too much deranged to leave him in possession of his royal power, a commission of several authorised men went to the castle where he resided to place him under the care of a physician. The king refused to receive the commission and ordered his faithful guards by whom he was surrounded to seize the commission, gouge out their eyes and treat them otherwise in the most outrageous way. The commission not being protected were for a moment in great danger, but happily the guards perceiving the seriousness of the situation did not execute the king's orders and we might say,—broke their oath.

Did they really break their oath? No, they did not, for when they were sworn to obey their sovereign master and lord, it was supposed that the king was and would remain in his right mind. He became insane and this changed the situation entirely.

The oath of allegiance which the ministers of a church swear at their ordination is made in the bona fide conviction on both sides,—the church on the one side and the man that takes orders on the other side,—that the dogmas to which he pledges his troth are the truth. The oath holds good so long as a minister believes that the dogmas of the church are the truth; it still holds good so long as he considers it possible that they may be true. But the oath to believe them ceases to bind in the sense in which it was demanded as soon as a minister sees clearly that they are not true and that their truth is an actual impossibility. It ranks in the same category as the oath of allegiance to a sovereign who has become insane.

But the case is more complex still. If promissory oaths have no legal force because in certain cases a man would have to act against the letter of the oath, have these oaths no binding power whatever, as soon as a minister recognises the incongruity of the church belief with truth? I should say that they have a binding power, yet this binding power must be sought not in the letter but in the spirit of the oath.

One of the most prominent of juridical authorities, Prof. Rudolf von Jhering, has written a book entitled "Der Zweck im Recht." He finds that all laws, all wills, all decrees have a purpose, and this purpose is their spirit. There are laws worded so badly that obedience to the letter of the law would under certain and unforeseen circumstances enforce exactly the contrary of that which the law was made for Instances of this kind are of not an uncommon occurrence especially with regard to wills; testators and their legal advisors being often unable to formulate their intentions in a logical shape. Jhering maintains that a judge in construing a will, a decree, or a law has to find out the intention and purpose of the testator, the magistrate that gave the decree, or the legislator, and it is this intention or purpose with which his decisions have to agree. Supposing however that this purpose of a will or a law is wrong in itself or nonsensical, a judge has to construe it so that it will have sense. If the purpose is criminal the whole transaction is illegal, if it is irrational or illogical, it has to be interpreted so as to make it rational and logical. If it has reference to antiquated views, customs or institutions it has to be adapted to the corresponding modern views and to existing conditions.

An instance from practical life will explain the last point. There are many institutions in Northern Germany which were founded as cloisters or monasteries. The nuns and monks have been engaged partly in teaching, partly in attending to the sick, and in other useful purposes. The funds of these institutions exist still, and serve now those purposes directly which they have served formerly indirectly through the service of nuns and monks. Most of them are employed for the maintenance of schools, some of them as hospitals, others as homes for unmarried daughters of government officials or for homeless aristocratic ladies without means, etc. These changes have been wrought by history as the natural consequence of new conditions. Many of them were made in actual violation of the letter of the testators' will; yet they were made bona fide with the intention to remain faithful to its spirit? The question is not what a testator intended his will to be half a millennium ago, but what he would intend it to be in the living present, knowing all the changes which the progress of the times have wrought and having progressed with the times.

Before we answer the question, What is the purpose of the minister's oath? we should first see clearly, what is the purpose of the church. Is the purpose of the church really to be sought in the propaganda of some absurd dogmas? Or does not rather the preaching of these dogmas itself serve a purpose?

The dogmas of Christianity were some time ago supposed to be the indispensable instruments of ethical instruction. All the churches are educational institutions to inculcate the moral ought on the basis of a popular world-conception. The church of England for instance is a national institute and it is not true that one church party has the right to impose its religious conception upon the rest of the nation. When the church was founded some crude notions were taken to be absolute truths and no man can at the present time be required to believe these crudities. All institutions are conservative but most conservative are the courts of jus-

tice and the church. The conservatism of jurisprudence is characterised in the saying which appears to be its leading principle *fiat justitia et pereat mundus*. Jurisprudence too often forgets that the dispensation of justice serves the purpose of sustaining life, of promoting the general welfare and enhancing the prosperity of the community; it overlooks the spirit and clings to the letter.

Our justices are inclined to believe that if a new world-conception arises, (which by the bye will as we believe not be materialistic nor will it destroy the idea of moral responsibility, although it may change our views about guilt,) their whole system of jurisprudence will break down. They are afraid of a *pereat justitia et vivat mundus*. Justice Schiffer is not at all anxious to prove the truth of the old world-conception, he is satisfied with proving that the new world-conception is incompatible with the old view of justice. Criminal law means punishment and punishment presupposes the idea of guilt. He argues:

"The question remains whether the conflict between the new and the old world-"conception could be avoided by adapting our views of justice to the new world-"conception; yet this question is to be denied, for the notions of guilt and punish-"ment belong to each other according to logical, ethical, and moral principles. To "punish without assuming guilt is as nonsensical as it is immoral."

It would lead us too far here to show that moral responsibility still subsists on the supposition of a strict determinism and that the criminal law with its punishments will not be abolished in the future. Yet there is no doubt that our views of punishment will have to be changed; indeed they have changed and how much they have changed, can be learned by a comparison of an execution of to-day with one of a few hundred years ago. The idea of punishment in the sense of inflicting pain as a retribution has gone and it has gone forever. There is no more burning of the criminal with hot irons, or twitching with hot tongs, or tearing out his tongue, or stretching on the wheel. The criminal is executed with as little pain to him as possible. Why this change? Because a new world-conception has entirely altered our views of punishment and it is going to alter them still more. Penology is not to be based upon sentimentality as some so-called philanthropists intend to do; nevertheless it is to and it will become humane because we have abandoned the old conception of guilt which as Justice Shiffer correctly states was a fundamental idea in the old jurisprudence, and this antiquated conception of guilt has partly but not as yet entirely been overcome.

The church is in a position similar to that of the criminal law courts. A change of our world-conception has set in and the church is not as yet adapted to the change. The church having found it necessary for its purpose of preaching ethics to insist on the belief in a world-conception which demonstrates a moral world order, now attempts to perpetuate certain errors of our ancestors' conception of this moral world-order.

The oath of a clergyman having been asked and given bona fide on the supposition that the dogmas of the church were the truth, holds good still, but it must be

construed as in similar cases a judge would have to construe a faulty will or an ill-worded law. It has to be construed in the spirit and not in the letter.

Clergymen who have grown liberal should not leave the church. It is their duty to stay in the church and to make their influence felt to broaden the spirit of the church. If the church removes them from their position, they yield to the authority at present in power, but they should not yield without a struggle, to be conducted on their part modestly but firmly, with reverence toward their authorities, with tact and decency, but fearlessly and bravely, for they are fighting not only for their personal interests but for the progress of mankind, they are fighting for the holiest treasures of the church—for truth.

The abolition of these burdens on the consciences of the clergy would be a natural consequence of repeated struggles. Let a pastor be bound to respect his church authorities, to obey them in all matters of administration, let him be bound to revere the ecclesiastical traditions of which he should never speak lightly, but do not prescribe to him a belief of any kind. Pledge him to serve the truth, to speak the truth and to live the truth; and that simple pledge will have more weight than the requirement to believe dogmas which, his superiors know but too well can no longer be believed literally but must be taken *cum grano salis*.

Christ says concerning the observances insisted upon by the Scribes and Pharisees: "They bind heavy burdens and grievous to be borne: and lay them upon men's shoulders." This passage is applicable also to the present system of ordination. Christ's saying is read in the churches and it is, as most of his words are, as new to-day as it was at his time, but who thinks of its application to our present system of burdening the consciences of men? P. C.

A COMMENT BY PROF. F. MAX MÜLLER CONCERNING THE DISCUSSION ON EVOLUTION AND LANGUAGE.

To the Editor of The Monist:

I must thank you and Professor Romanes for the frank and searching criticism to which you have both subjected my article on "Thought and Language," published in *The Monist*. You have shown that you care for truth and not for victory, and you have carefully abstained from any personal remarks which are so apt to embitter scientific controversy and in consequence to render its chief object, the discovery of more truth, illusory. We all have the same object, we all want to know what is true—why then should we not all work together, listen to friendly criticism, accept useful advice, confess our mistakes, and work as hard as we can in the special field allotted to each of us.

As soon as I find a little more leisure, I shall not fail to reply fully to both your articles. At present I only write to you to defend myself against an undeserved charge brought against me by Professor Romanes. I had said that Professor Romanes had no right to speak of men like Noiré, Huxley, Herbert Spencer, to say nothing of Hobbes, with an air of superiority. Professor Romanes replies that he never mentioned Mr. Herbert Spencer at all, that it would have been well for me, if, before condemning his supposed treatment of Herbert Spencer, Huxley, and Noiré, I had looked at his Index. This is a serious charge. It would show a want of accuracy unpardonable in a scholar. It is true, Mr. Herbert Spencer's name does not occur in the Index. But on p. 230 we read: "So here again we meet with additional proof, were any required, of the folly of regarding the copula as an essential ingredient of a proposition." Now it is well known that it is Mr. Herbert Spencer who regards the copula as an essential ingredient of a proposition. I have shown that the facts of language are against Mr. Herbert Spencer, but I should not therefore think it right to charge him with folly. This will show that if I wrote without Index, I did not write without book.

Yours truly,

Oxford, Oct. 28, 1891. F. MAX MÜLLER.

BOOK REVIEWS.

SYNOPTIKER. APOSTELGESCHICHTE. Bearbeitet von Professor *H. J. Holzmann.* Zweite verbesserte und vermehrte Auflage. Freiburg, i. B.: Akademische Verlagsbuchhandlung von J. C. B. Mohr. 1892.

This book is the first volume of the "Hand-Commentar zum Neuen Testament" edited by the Professors H. J. Holtzmann, R. A. Lipsius, P. W. Schmiedel, and H. v. Soden.

No better man could have been selected for the first part of this great work than Prof. H. J. Holtzmann, who is not only a theologian of most comprehensive scholarship but also has devoted his energies to this special subject. He has lectured regularly for a number of years at the university of Strassburg six or eight times weekly on the synoptic gospels and three times weekly on the Acts. The principle of his method has been laid down in a former work of his, viz. "Lehrbuch der historisch-kritischen Einleitung in das Neue Testament." The present book contains an enormously voluminous material condensed into a comparatively small space of 448 pp. large octavo. The author being a theologian his attitude toward his subject is naturally reverent, paying an unreserved homage to the greatness of Jesus. Yet at the same time his investigations are strictly scientific and in accordance with the rules of criticism as employed in any historical investigation. It is no exaggeration to consider Professor Holtzmann's work as representative in the highest degree; it embraces the most complete knowledge at present attainable and that too in a most concise form as a practical hand-book with parallel tables and indexes of reference for students of the New Testament.

The author first formulates "the synoptic problem," which has been solved after innumerable vain attempts by the so-called "Marcus-Hypothesis," which is at present considered as satisfactory, because it alone fulfils every condition and explains all the difficulties. Holtzmann regards the figure of Christ as historical. The impression of his powerful personality was a living presence in the first congregation at Jerusalem. But all the interest centred in his words. The words of their Lord were faithfully preserved by oral tradition. Sentences so short and yet so pregnant with meaning as "Blessed are the peacemakers," or "Ye are the salt of the

earth," "But let your communication be, Yea, yea: Nay, nay, etc.," are so impressive that whoever has heard them once, will never forget them. The interest in the word was soon complemented by an interest in facts and events which was much later followed by an interest in dogma. The first differences among the Christians originated through the mission among the heathens. The gentile Christian became indifferent concerning the Jewish traditions and clung with all his religious enthusiasm to the Christ as his saviour. Christianity became a cosmic religion while the Jewish Christians still looked upon Christ as the Messiah of the people of Israel. The Jewish view of Christianity is represented by Matthew, the gentile view by Luke. Mark however does not show any development of dogma. According to Papias, the Apostle St. Peter had whenever it became necessary for an explanation of the words of Christ, occasionally told certain events of the life of Jesus; which were afterwards written down by Mark. We find in Mark, Matthew, and Luke the same building stones, but how differently arranged! Mark shows evidence of relating real facts of history, he begins with John the Baptist, tells us how Jesus became baptised, how he preached the kingdom of God; according to Mark, Jesus does not declare himself as the Messiah from the beginning. His activity grows by degrees, his disciples increase, he heals the sick, and it is from the mouth of these that he was first proclaimed as the Messiah. He becomes a power among the people and makes himself offensive to the authorities who consider him as dangerous and attempt to take his life. Jesus forbids those whom he heals to proclaim that he is the Messiah. He sends out his disciples not to preach him as the Messiah, but to proclaim the kingdom. At last in Peter the idea dawns that prompts him to declare: "Thou art the Christ." Yielding before the persecution of his enemies, Jesus travels North and East and here he accustoms himself to the idea of a suffering son of man. His self-confidence increases and he travels courageously to Jerusalem where, as he could foresee, he would meet his fate. The drama of his life culminates in his word "ἐγώ εἰμι" (1462) in which he reveals his self-consciousness as being the Messiah. Being triumphantly hailed in Jerusalem by people of Galilee and such as believed in him he hastened his doom. It is not likely that Jesus could have publicly been held to be the Messiah for any length of time, for the Roman police was wont to suppress such movements without discrimination. They did not stop to investigate the case as to the character or motive of the movement whether or not it was purely religious or political. They never tolerated any "son of David" or "king of Israel" who held any influence over large masses of the people.

While Mark still preserves the development of Jesus's messianic consciousness, Luke as well as Matthew have entirely obliterated it. According to Mark, Jesus proclaims the kingdom; Matthew and Luke make him preach his person. They make Jesus proclaim himself as the Messiah from the very beginning and his command not to speak it out openly given to those whom he healed and also to his disciples has no sense here. Matthew has a liking for cabalistic numbers, there are

three times seven generations the names of which are not without doing violence to historical facts adjusted to the pattern, there are three temptations, seven parables, etc. Throughout we notice reflection, purposive selection of the material, and artificial adjustment to a plan. The book has a tendency to show that Jesus was the King of Israel predicted by the prophets and in the psalms. Luke on the other hand has also a dogmatic programme. It is the gospel of gentile Christianity as founded by Paul.

The critical school finds adversaries among theologians as well as unchristian thinkers, both of whom are apt to speak of fraud when religious books are written with certain dogmatic tendencies. Professor Holtzmann objects to such a view of the development of Christianity. He says that a religion which did not rouse sufficient enthusiasm to develop a religious poetry would be very poor and lifeless. Even the apocrypha of the New Testament are evidence of the vigor of the new religion, although we must be aware of the fact that the Church showed good judgment when adopting its canon to accept those which were full of moral meaning and to reject those which were mere myth without any deeper significance.

We have given this abstract of one part of Holtzmann's work with the omission of all the learned by-work for those not familiar with theological investigation. Similar results are obtained by an inquiry into the origin of the Acts. The apostles were the first and living representatives of the Christ. Out of the interest in the apostles' words grew an interest in their actions and lives, and there are a great many writings of this subject preserved. One only has been received into the canon.

It is impossible to follow Professor Holtzmann into the details of his work, but we can warmly recommend it as the best compendium existing, not only for the student of theology but for everybody who is interested in the results of the scientific criticism of the synoptic gospels and the Acts.* κρς.

Schriften der Gesellschaft fuer Psychologische Forschung. Heft 2. Ueber Aufgaben und Methoden der Psychologie. By *Hugo Münsterberg*. Leipsic: Ambr. Abel. 1891.

In this monograph Professor Münsterberg prepares the way for greater and more important work. His aim is to define the province of psychology and to investigate the methods which have to be employed. Psychology is not philosophy; accordingly the consideration whether there is a reality of an outside world does not belong here. The psychologist is not bound to wait till this and other metaphysical questions are decided with certainty; the reality of the outside world has simply to be assumed together with its cognisability.

What means 'to explain'? "To explain means simply to render clear that which is not clear or to reduce the unknown to the known, the complex to the simple (p. 104)

* A companion work on the Old Testament has been written by Professor Cornill. We shall review it in our next number.

. . . . It is an indispensable presupposition of any natural science to consider nature as being capable of explanation (*erklärbar*), and this presupposition means that natural processes can be perfectly separated into most simple mechanical processes. This presumption can be realised to-day only on the basis of the atom-conception. It is accordingly not an experience, but a postulate of natural science to derive the whole material world-process from the mechanism of atoms. A description becomes an explanation in the measure in which it approaches this aim" (p. 105). The question is, whether in psychology, description can be supplanted by explanation, whether laws can be stated instead of mere rules.

Professor Münsterberg takes that ground in psychology which as it appears to us is the only tenable ground, viz. that feelings are not motions and cannot be explained as converted physical processes. Professor Münsterberg says: "A sensation, a feeling, a will can never fill even the very smallest space. What is extended in space can never itself be a state of consciousness. To the psychologist this distinction is now a matter of course, so much so that it is difficult to call to one's mind how much trouble it cost to acquire this insight. The object of psychology accordingly can never be an object in space, it can never be a process of motion, accordingly, even brain-irritation can under no circumstances ever become the object of psychology" (p. 97). Psychology has to investigate the psychical phenomena of the individual consciousness (p. 102), it has to separate it into its elements, i. e. those ingredients which are no longer divisible, which being done, psychology searches for the rules for the combinations of these psychical elements and shows us the different complex contents which are formed in this way by the elements up to that totality of single combinations which is given us as the contents of our spiritual personality (p. 103).

The question is, (1) Are there psychological processes in us, the development of which presents itself with immediate certainty as necessary, and (2) can we reduce all the individual and with them all the spiritual phenomena to such spiritual processes recognised as necessary? The first question can be affirmed, although only in a limited sense, and the second question must be unequivocally denied, thus making an immediate explanation of psychical phenomena impossible" (p. 107). The first question is to be affirmed in a limited sense, because "if certain premises are thought, the conclusion, it appears to us as a necessity, can be thought thus and not otherwise" (p. 108). But this is "a logical and not a psychological necessity." To actually think the conclusion depends upon the will to think it. The will actually existing, the logical necessity becomes a psychological, for "the connection between the willing and the willed (*zwischen Willen und Gewolltem*) always appears to us as necessary. . . . Where there is inner will there is an inner necessity." Now, in order to make explanations in the physical world, we supplement that which has been actually observed with not-observed connections. But we cannot, according to Münsterberg, in an analogous way supplement in the world of psychical phenomena the conscious states with any other kind of states which are not conscious, thus re-

ferring our spiritual life and acts of will to unconscious processes, for "the very nature of psychical states is consciousness, i. e. a state of being conscious. Ihr Sein ist das bewusst-sein. . . . A state of consciousness, says Münsterberg, which is not conscious, is comparable not to a body which is not perceived, but to one which does not exist. Accordingly unconscious psychical phenomena do not exist. All psychical phenomena are directly given and the reduction of their combinations in a certain way through hypothetical psychological supplements is once for all excluded" (p. 110).

We agree in all the main positions with Professor Münsterberg, but in the last mentioned point we disagree. Professor Münsterberg limits psychical states or feelings to states of consciousness without considering that there are subconscious and even unconscious feelings. By consciousness we understand those feelings alone which are concentrated so as to be connected with the ego, i. e. the present centre of consciousness. We assume that even the spinal ganglions of the brainless frog are feeling if the skin is irritated, but this feeling can never become conscious, it can no more be telegraphed to the central station so as to become co-ordinated with other feelings which are registered in the brain. The objection may be raised, We do not know whether the ganglion is feeling; and I should answer, I call feeling anything that is of the same nature as the elements of which consciousness consists, and we have all reasons to assume that there is such an elementary psychical accompaniment of the ganglionic irritations, and that consciousness rises from many such elements through their co-ordinate combination in the brain. Isolated feelings are never conscious, and consciousness is a co-operative system of feeling. This distinction between consciousness and feeling is a mere matter of terminology. If we find another terminology more practical we are willing to surrender ours. Yet such a distinction between consciousness and feeling seems to be necessary for a proper description of the psychical facts. The assumption of subconscious states and even of unconscious feelings is a great help in explaining the phenomena of consciousness. But unless we are grossly mistaken, our disagreement is merely apparent, for Professor Münsterberg, rejecting the idea of a psychological explanation, believes in the parallelism of psychical and physical phenomena. "The physical acts" (he says on p. 125) "reducible to mechanical axioms can be explained through causation, the psychical acts follow one another without inner necessity. If we connect both, we are enabled to transfer the necessity-connection of the physical upon the psychical and offer thus an explanation where otherwise description only was possible." But in doing this, have we not supplemented those psychical elements which appear as conscious states by other psychical elements which have not entered into that combination which makes them actually conscious? It is an hypothetical addition for the sake of explanation, a *Hilfsconstruction* just as much as the supposition of the existence of atoms or electric currents or other physical phenomena which are not directly observed, but indirectly in their effects only.

Supplements are necessary for explanation wherever the immediate facts do not contain all the elements of a certain process. If an observable phenomenon has not its conditions in observable facts we hypothetically assume unobservable facts as its causes. But we may incidentally remark that description and explanation are not different in kind, but in degree. Explanation is an exhaustive description set forth in its greatest possible simplicity. An exhaustive description enumerates all the determinative factors of a process and it drops everything that is of no account, so that information is imparted with the greatest economy as well as completeness. An exhaustive description is a reliable guide to preascertain the outcome of a process, and reveals in this way the identity in the change, the continuity of the process and the conservation of matter and energy in their transformations, or, in other words, it reveals the necessity of the result. There is perhaps no natural science in which the processes can be exhaustively described without hypothetical supplements and so the science of psychology forms no exception to the general rule.

The aim of psychology in its wider sense will be "to separate all the contents of consciousness into their elements, to state their laws of combination, and to seek in an empirical way for the diverse elementary psychical contents, their correspondent physiological irritations, in order to explain in this way mediately from the coexistence and succession of physiological irritations the purely psychological laws of combinations which as such are unexplainable" (p. 127).

Our objection to this view resembles much some of the objections which Professor Münsterberg himself makes when speaking of the availability of the mathematical method so-called. He says: "Measuring and counting of psychological phenomena have been made repeatedly, directly as well as indirectly, and it has been proved that mathematics can be applied to psychology. . . . Nevertheless it would be a misuse of the word if we named these numerical descriptions an 'application of the mathematical method.' If an historian of literature counts the poems and dramas of authors, if he also calculates how long it took them to write their literary products, who would call his work a mathematical history of literature? Even astronomy would be no mathematical science if we counted only the stars in the sky." If the aim of psychological explanation were as Professor Münsterberg here asserts to be reached through the explanation of physiological states only, we should say, that the physiological method were alone admissible in psychology, a principle to which our author rightly objects. Psychical states sometimes demand a physiological explanation, and we cannot understand psychology without having a certain amount of physiological knowledge. Nevertheless, the explanation of psychical states and the necessity of certain connections must be understood mainly from the psychical elements themselves. Psychical elements, i. e. feelings, as has been explained on other occasions, have acquired and constantly do acquire meaning. This meaning which appears in sensation-symbols and thought-symbols and which is different in the different forms of feeling (correspondent to different forms

of nervous action), creates a new domain,—the domain of spirit,—and thus psychical states are changed into spiritual facts. Suppose for instance that a merchant receives his mail; he opens a letter containing some important news which sets at once all his nerves into irritation, makes him neglectful of all other things in order to attend with great haste to one special affair. How can we explain this instance, or any other spiritual act through a consideration of physiological conditions. Is it not the meaning alone which special sense-impressions convey that produces the extraordinary effects? The physiologist would as little be able to detect this meaning through an analysis of the sense-impressions, as an electrician would be to understand the import of a telegram when measuring the strength of the electric current in the telegraph wires. The combinations of the purely psychical states may after all not be quite unexplainable, while their physiological concomitants are in many cases insufficient to account for spiritual interconnections.

In discussing the methods of psychology Professor Münsterberg rejects the speculative and the mathematical methods; he claims a great importance (and we agree with him) for self-observation. But self-observation is no easy task; it requires a high degree of training. "He who does not understand botany cannot make observations of plant-life. The same things which call into play certain associations in the botanist are also seen by the layman, but they remain unobserved. Self-observation is in a similar way . . . not without its presuppositions; it is dependent upon a rich store of ready associations" (p. 164).

Psychological investigations under natural conditions are classified by Münsterberg according to their objects, as those of the normal man, the child, the savage, the insane, the animal, etc. In experimental psychology, psychopetal, psychofugal, and psychocentral processes are distinguished. For psycho-physiological investigations we have besides, (1) the immediate experiment in the laboratory, (2) the method of anatomy, (3) of comparative anatomy, (4) and of physiology. Professor Münsterberg concludes with an appeal to institute special professorships of psychology, which is at present a mere branch of philosophy. It takes all the energy of one man to keep abreast with the progress of psychological investigation. "No medical man, no lawyer, no theologian, or educator should enter into practical life without having passed an examination in psychology . . . the growing generation of children, the sick, the criminal, and the comfort-seeking souls of mankind have to suffer if teachers, physicians, judges, and preachers are ignoramuses in the matter of human soul-life. . . . But here also the gods have placed sweat before virtue." *κρς.*

La Philosophie du Siècle. By *E. de Roberty*. Paris: Félix Alcan.

The author of the present work, which forms a volume of the Library of Contemporary Philosophy, is one of those disciples of the founder of French positivism who, while following in his footsteps to a certain point, do not hesitate to diverge

from the beaten track when they think their leader has gone astray in his philosophic quest. M. de Roberty speaks of Comte with reverence as his first guide and his best master, and he finds in the very contradictions of the Master the germ of his own conception of the general trend of philosophic development.

The fundamental thesis of the present work is that the three contemporaneous philosophic systems, those of Criticism, Positivism, and Evolutionism, are merely varieties of a single species, as strictly parallel manifestations of a common stock of beliefs and general hypotheses. The basic identity of the thought of this century is shown by the ever increasing convergence of the great leading ideas, as exhibited in the prevailing theories of knowledge, by the preponderance of relativism, and of agnosticism. It reveals itself, especially in the similar conceptions formed by the most varied systems, not only of the essential characters of philosophy, its method, and the ends it ought to pursue, but also of the scientific laws which govern its evolution. We cannot follow the author through his discussion of all these points and we must therefore restrict ourselves to the most salient features of his argument.

Modern philosophy is represented by three principal schools: Criticism which originated with Kant, Positivism founded by Comte, and Evolutionism introduced by Spencer. These three systems had a common ancestry, that of sensualism. The critical philosophy is the legitimate heir of sensuous idealism, and the positive philosophy the immediate descendant of sensuous materialism. The evolution philosophy is itself rooted in sensualism, but it is really a conciliator of the two great philosophies which preceded it, Criticism and Positivism. This conclusion, which appears to us just, is supported by various considerations to which reference here is not necessary. M de Roberty bears testimony to the influence of the philosophy of Kant over the development of the evolutionist conception, which could be applied to society only by giving an apparent universality to the mechanical hypothesis. This was accomplished by Spencer, as it had been done to some extent by Comte. The popularity of the evolution philosophy is explained by the author as due to its admixture of agnosticism with a monism which captivates the masses "by the audacious assertion that it has raised all veils and resolved all enigmas." Kant, Comte, and Spencer have equally seized this characteristic trait of the genius of our century. They each treat, says M. de Roberty, of the most transcendent problems of metaphysics, and place them carefully under the cover of the experimental method. Let us add that they are each different expressions of that genius, which marks the progress of the mental evolution of mankind.

The second part of M. de Roberty's work deals in the first place with the conceptions of philosophy, its nature and its end, framed by the three great modern systems. The confusion generally made between philosophy and science is first pointed out, the evil of which arises from the fact that allowance is not made for the progress of scientific knowledge. The author is strongly inclined to favor the idea of the general equivalence of science and philosophy, in the sense that every

effect is identified with its cause. But as the effect is always modified with its cause, neither the content nor the general conception of philosophy can remain unchangeable. Philosophy becomes thus the co-ordination of the sciences in view of their general and abstract finality—by which is meant simply the last term of an evolution—a conception of the world.

In what do the conceptions of philosophy held by the criticist, the positivist, and the evolutionist, differ from that formulated by M. de Roberty? He affirms that they all entertain certain errors of method derived chiefly from ancient metaphysics. The prototype is found in Kant, who says that philosophy is a system of universal acquirements formed of abstract notions, and that it has for its aim the passage of our understanding from sensible to suprasensible knowledge. The latter is the *a priori*, the permanent and verifiable hypothesis, for each of them. It is the transcendental element which all modern philosophy has derived from the past, and which forms the bond of alliance between faith and knowledge. Of the three postulates of Spencer, the universal hypothesis is in the first, an Unknowable Force. The other two belong to psychology, proving that the English evolutionist, like Comte, confounds science with philosophy, which to him, as to his predecessors, is a simple theory of knowledge.

Philosophy is a method which conducts to a conception of the world. But, says M. de Roberty, modern philosophies fail in that they deal with hypotheses. Now, although hypothesis is the soul of the special sciences, for philosophy it must always be a purely mental recreation. To render valid the universal hypothesis constructed by philosophers, it would be necessary that the sum of the final truths of science should include the sum of the phenomena which constitute nature.

We cannot follow the author through his ingenious criticisms of Spencer's great synthetic formula, to which he devotes the twelfth chapter of the present work, and which he characterises as the perfect type of the universal unverifiable hypothesis. Nor can we do more than give a passing glance at his views of the psychology of the three modern systems of philosophy. He affirms that the metaphysical transformation by criticism of psychology into philosophy left hardly anything to the special science. To positivism is due the conception of psychology as forming an integral part of biology, which has led to the important psycho-physical experiments of the present day. But the biological analysis of the individual should be followed by social analysis, the study of mental manifestations in society, in connection with which should be created a special concrete science to embrace the higher psychology, as pointed out by the author in his work "La Sociologie." Science, art, and industry are a projection into the external world of the thinking, feeling, acting subject, and psychology ought also to be thus projected by fusion with biology, or with biology and sociology, which it is necessary to study if we would discover psychic laws.

In the chapter on the Supremacy of Science, the author affirms that the philosophy which will result from the progress of psychology and sociology will present

a striking contrast with all known metaphysical forms, but it will always remain a world-conception, and it will have to submit to the law of correlation which explains the character and destinies of its predecessor. Agnosticism, which invites men to bend before the *Deus ignotus* of all religions, marks the fatal termination of ancient anthropomorphism, influenced by a progressive knowledge, and thus appears as the final integration of all theology. It also represents, however, the condition of incognisance to which the opposite state will succeed when the cycle of abstract sciences is completed and a really scientific psychology formed. Then hypotheses as to universal causes will receive their psychological solution, and it will remain for philosophy only to confront and co-ordinate them with the general results of other sciences. Having arrived at this point M. de Roberty formulates the conclusion that Philosophy and Science are terms which connote two principle *species* in the vast *genus* designated by the single term *knowledge*. The most marked trait of future philosophy will be the distinction of these two species, as their confusion was the most general character of the philosophy of the past. Philosophy and science will then be perfectly identified, but the identity will be general and not specific. Thus philosophy will not be positive in the sense of Comte, it will never *completely* identify itself with science.

In his last chapter, entitled "The Intellectual Series," M. de Roberty continues his criticism of the views of Comte as to the law of the evolution of philosophy. He shows that, so far from this being the most general law of intellectual evolution, and therefore the supreme law of all social phenomena, philosophy is only one of three intermediate terms, the others being art and industry, by the aid of which the evolution of scientific ideas acts on the ensemble of the social evolution. The intellectual evolution is the direct consequence of the social fact, but the social evolution is subject to the laws of intellectual evolution, which embrace four great classes of conceptions, answering to the four well recognised groups of facts known as science, philosophy, art, and industry. We have here the same series of special evolutions as those supposed by Comte, with the important change, however, marked by the inversion of the first two members of the series. In this relation, the author affirms that Comte's law of the three states is false so far as concerns the evolution of the sciences, and is of very secondary importance as regards the evolution of philosophy and the two succeeding evolutions.

The author concludes his work with a criticism intended to show that the principal defects of Comte's system arise from the confusion previously insisted on in relation to the first terms of the intellectual series, science and philosophy. That confusion is exhibited in the statement that among the ancients philosophy was developed before science and art. M. de Roberty, moreover, declares Comte's theory that the industrial development is the point of departure of modern civilisation, leads to a complete subversion of the logical and historical. Instead of the useful or the proper being, as that theory would require, the foundation of the good and this, in its turn, the germ of the true, the true is the foundation of the beautiful,

and of the good and the useful. But the true is more complex than supposed by Comte. It possesses at least two aspects, science and philosophy, which may be really distinguished, although the line which separates them is yet undetermined.

We have given a summary of M. de Roberty's general argument, instead of referring to particular propositions which may be open to criticism, because his work appears to us a very valuable contribution towards the elucidation of the important question as to the position of philosophy in relation to science. We shall look with much interest for the appearance of the author's two further works which he announces as supplementary to the present one. That on Agnosticism is already in the press. The subject of the other work is Monism, which M. de Roberty characterises as "the chimerical pursuit which has essayed, through the ages, to fix the so-called unity of things, the extra or supralogical identity of phenomena." This hypothetical monism of philosophy is dealt with incidentally in the present work. The "supralogical identity of phenomena" is a different kind of monism from that of *The Monist*. Ω.

Ueber Bewegungsempfindungen. Inaugural-Dissertation zur Erlangung der Doctorwürde vorgelegt der hohen philosophischen Facultät der Albert-Ludwigs-Universität zu Freiburg i. B. By *Edmund Burke Delabarre* of Massachusetts. Freiburg in Baden : Hch. Epstein, 1891.

Dr. Edmund Burke Delabarre introduces himself to the world of science with an excellent monograph on motion-sensations, based upon careful observations which were made in Professor Münsterberg's psychological laboratory at Freiburg i. B. The subject of the dissertation is of great importance and there is much confusion prevalent at present even among the most prominent authorities. It appears to us that Dr. Delabarre has adopted the right view and he certainly defends it with great ability. Professor Wundt rejects in his Physiological Psychology all the theory of the so-called "muscle-sense" and admits that there is some truth in the three explanations devised as an explanation of our consciousness of performed motions, which thus would be a complex of (1) pressure-sensations, (2) specific muscle-sensations, and (3) innervation-sensations. This third kind of sensations is of a very hypothetical nature. The term signifies that, when muscles are innervated we are supposed to have a direct sensation of the innervation in the central nerve-organs; and this view is objected to by Münsterberg, who says that "a brain irritation which is not accompanied with centripetal effects or central after-effects of former muscular activity has its physiological consequences but excites no conscious states." Thus, according to Dr. Delabarre, without the motion of the sense-organs, i. e. muscular activity, there is no consciousness; all consciousness derives its data from the periphery. Dr. Delabarre goes over the whole field of the literature of the subject and weighs all pros and cons. He finds that all cases are intelligible without the supposition of central innervation-sensations. He admits that the term muscle-sense is vague, but he believes that the term having been generally intro-

duced may be retained. He defines it as that complex of sensations which results from muscular activity.

The second part of the dissertation contains the reports of the experiments, describing the instruments used and the methods employed.

We are informed that Dr. Delabarre has been appointed to the chair of psychology in Brown University. *κρς.*

Le Nihilisme Scientifique. I. Dialogue entre le Doctor Oudèn et L'Etudiant Ti son Neveu. Rapporté par *P. Van Bemmelen.* Leide: E. J. Brill, 1891.

Dr. Oudèn's nephew thus summarises the scientific, or rather "philosophic" views of his uncle: "There is no God, but there is the world. In this world there are neither souls, nor mind, nor life; there is only matter and its elementary forces. Nevertheless these forces do not exist; there is only movement, the sole function of matter, which is inert. In its turn, matter has no reality; it is composed of geometrical points which are susceptible of movement. But as there is neither time nor space, there is no movement." Nothingness is thus reached, but beyond is illusion, the *maja* of the Hindoos, which explains all our conceptions of nature including that of our own being. This scientific *maja* is not the semblance of a real world, but that of a world which does not exist, so that illusion and nothingness are the same thing. From which it follows that there is no illusion and no mind to be deceived! Mr. Van Bemmelen's opuscule is an ingenious *jeu d'esprit*, evidently intended to exhibit a certain phase of speculation as a *reductio ad absurdum.* Ω.

Diritto Sociale Tentativo in Bozza. Dell' Avv. *Pietro Pellegrini.* Borga a Mozzano. 1891.

There is no denying the activity of the statesmen and scholars of modern Italy in the cause of radical, social reconstruction and, as remarked by a recent traveller in Italy, in the "building up again a Commonwealth, founded on high principles of right and equality." "Diritto Sociale," in Italian jurisprudence, of course, relates to municipal and positive law, in its social-economical and social-political aspects. But, in a country with the municipal and political traditions of Italy, this "Diritto Sociale," even in modern times, exhibits a tendency to crystallise into a kind of concrete, social religion. The Avvocato Signor Pietro Pellegrini, the learned author of this book, appears to feel deeply concerning the present condition of this branch of jurisprudence in Italy.

In his preface the author says, that during the present century legal science has not made any very substantial progress; that the revolution of the last century, while asserting the famous rights of man, forgot the rights of juridic persons, of corporations, and law became an *individualista*—or, individualiser. On the strength of his juridic personality man thereupon engaged in a struggle for his rights on the vast social field, but he found himself alone—an individual and nothing more. As

such, he could not form a juridic, social organism, but he merely sought to adapt himself to an actual, external juridic organisation, differing but slightly from old-time despotism. On this basis the State still continues to create municipal and positive laws, more or less adapts them to the facts of reality, arbitrarily creating juridic persons and administrative bodies, such as the *mandamenti*, *circondarii*, *provincie* of the modern Italian kingdom—all of which are only hybrid administrative *entia*, that do not in the least satisfy a number of local public needs; and therefore, there is no harmony between individual men and the juridic persons, between the public administrative entia and the State, and there is bloody war among the States themselves.

The ultimate cause of all this conflict is to be ascribed to the individualism of the law, in not recognising organic, juridic relations; and this, moreover, necessarily called forth the reaction of an exaggerated socialism. . . . Person has a much wider significance than individual; person cannot be isolated, individual, because, juridically, person implies an exchange of relations with others; hence, juridic persons ought to enjoy a greater legal authority than they actually enjoy in our modern jurisprudence. The *plasma sociale*, or the original social mould, is developed by degrees into a vital, practically real, organism, endowed with a physical body, that needs the material means of nutrition, in order to live, to preserve, and develop itself. These, however, do not exist; because nature furnishes only sufficient means to preserve man in a purely savage, animal condition. But, at least, there exist the sources, or fountain-heads, from which it is possible to derive the desired nutritive materials; on condition of molding or transforming those fountain-heads, and of assuming their efficacious, practical direction. In the individualised or individual system there takes place a struggle among the individuals for the possession of that nourishment, in which case, however, the sources themselves are appropriated rather than the nutritive materials they contain. Such is the exclusive nature of the social means of nutrition, present and future, through which a large number of individuals will be at the mercy of a few, while the notorious "rights of man," remain powerless. . . .

The rights emanating from the organic concept of personality, together with the physico-economical laws of the fountain-heads of social nourishment, spontaneously furnish the equitable distribution of the nutritive materials to each organic member, so that there is no monopolising of those natural fountain-heads, but a normal nutrition of all the organs, according to their needs, and their actual capacity as juridically displayed. . . .

Those fountain-heads, besides being limited, are scattered through space, because it is impossible to unite or concentrate them on any particular point of the globe. Hence this *plasma sociale* or social mold is distributed through space according to imperative laws, that result from the combined capacities of the respective juridic, that is, social persons, with the capacities of the respective sources of social nourishment—of different municipal organisations, of cities, townships, and

villages. All these are pre-eminently juridic and social persons, each one possessing its peculiar functions, that cannot be exercised by other persons. The present work contains a lengthy but valuable introduction in four chapters, discussing the general concept of law; and thereupon the book is divided into three parts, in which are explained the principles and development of positive law in its respectively civil-social, social-economical, and social-political aspects. This work, throughout, presents a number of equally important and novel points of view, through which the author's concept of an organic municipal and social law everywhere becomes the surest means of creating unity and harmony, not only within the general department of law, but also within the sphere of practical legislation. *γνλν.*

An Outline of Locke's Ethical Philosophy. By *Mattoon Monroe Curtis*, M. A. Leipsic: Gustav Fock, 1890.

This excellent study was presented to the University of Leipsic as the Inaugural Dissertation for the degree of Doctor of Philosophy, and it is well deserving of publication, if for no other reason than the need of such a work. There appears to have been hitherto no complete account of Locke's System of Ethics, which does not even find a place in Mackintosh's "Dissertation on Ethical Philosophy." The author has not been able to discover any trace of the treatise on Ethics which Locke proposed to write, but his published works "abound in ethical observation and severally took their rise from ethical considerations," so that there is no deficiency of materials from which to ascertain his ideas on that subject.

Mr. Curtis very justly remarks that it is important to ascertain an author's views before criticising them, a truism which is not always acted on, as indeed was the case with Locke's own critics. He does not, however, profess to criticise but, as the title of his work shows, to give an outline of Locke's Ethical Philosophy. In his Preface he states that his author adopted the Stoic division of Philosophy into Physics, Ethics, and Logic. The object of Ethics, is described by Locke, in his noted "Essay," as the seeking out of those rules and measures of human actions, which lead to happiness, and the means to practice them. The end of this, is not bare speculation, and the knowledge of truth; but *right*, and a conduct suitable to it. In the application of its principles Locke may be said to have gone further than any of his predecessors and of most of his successors. As pointed out by Mr. Curtis, he maintains that the institutions of government, religion, and education are, in essence, ethical and that all are parts of a system which must be based upon, and be in harmony with, the fundamental physiological and psychological principles of human nature. This follows from Locke's principle that the Individual, and not the Family, is the real social unit. Man is a rational, social, religious, and political being, and, therefore, "in the individual is contained, potentially, all institutionalism."

It must be noticed, however, that to Locke the moral dynamic in human society is the concept of God. He regards this idea "as a natural, formal, necessary

and transcendental principle at the root of human nature and institutions, and consistently declares that the denial of it dissolves all," as it alone gives a sufficient explanation and sanction to the principles of morality. This brings us to the very foundation of ethics. All depends, however, on our conception of God. Locke maintained that duty "cannot be understood without a law, nor a law be known or supposed without a law giver, or without reward or punishment." His conception of God, therefore, was that of a lawgiver, and he believed that the existence of God could be demonstrated not only by teleological argument, but also by psychological proof drawn from the being and nature of man. Locke was so thoroughly convinced of the dependence of morality on the existence of God, that, notwithstanding his general liberality of thought, he excluded atheists from toleration. He writes: "Promises and Covenants, and Oaths, which are the bonds of human society, can have no hold upon an Atheist."

It would be a mistake to suppose that, because Locke believed morality to be founded in our conception of God, he considered the moral law referable simply to the divine will, and therefore to be arbitrary and changeable. So far from this, he regarded the moral law as eternal and immutable, and affirmed that its cardinal principles could be discovered and laid hold of by the light of nature. As says Pfleiderer, when speaking of Locke and Wolff, "Locke also considers a supernatural revelation to be possible, and to have actually taken place in Christianity, but he insists as strongly as Wolff does, and even more logically, that this revelation must not in any way contradict the natural revelation given us by God in our reason." Locke expressly declares, that the reason *is* natural revelation, while revelation is natural reason enlarged. The latter he regarded as necessary because, although reason is sufficient for the virtuous, penalties must be relied upon for influencing the multitude; and in revelation the doctrine of immortality with future rewards and punishments is made known. Whether this revelation is true or false, the fear of future punishment has undoubtedly had a restraining influence over the vicious. But reason would not be sufficient for the virtuous without an inclination natural or acquired, to virtue. It is a question of disposition, and this will be virtuous or vicious, according to the conditions under which the individual has come into being and been "educated," in the fullest sense of this term. Reason forms part of these conditions which, so far as they are not purely objective, are dependent on or referable to human nature; as, indeed, must be the supposed revelation of enlarged natural reason.

In relation to the ethical life, Locke declares that happiness is the only idea which reason takes up out of the sphere of pleasure and pain, and yet that if we aim directly at happiness, we shall miss it. What then has to be done is to seek out "the rules and measures of human actions which lead to happiness." This is the office of ethics, the end of which is virtue, and thus happiness and virtue are one. With Locke moral actions are only those that depend "upon the choice of an understanding and free agent." The agent here intended is, as pointed out by Mr.

Curtis, the man, and not the will. Locke says that the proper question in connection with freedom, is not "whether the will be free, but whether the man be free." The will is determined by the mind, and liberty is "a power to act, or not to act, according as the mind directs." In his "Thoughts concerning Education" Locke affirms that "the result of our judgment, upon examination, is what ultimately determines the man, who could not be free, if his will were determined by anything but his own desire, guided by his own judgment." The position of Locke is, says the author, that of Plato and Kant: Reason is given as the governor of the will, by its sway to constitute it good. Thence we may rightly conclude, that those who are not governed by reason have not true freedom.

We have not space to consider the views entertained by Locke on Institutional Ethics, beyond referring to his doctrine that property rights are given only by labor, and not by occupation, and that labor is the source of all values. The latter doctrine cannot now be accepted as sound, whatever may be said as to the former, but Locke deservedly holds a high place as a political economist. He seems indeed to have been a kind of universal genius. Mr. Curtis refers to the remark made of him "that no philosopher since Aristotle has made and recorded so many valuable observations, or given so great a stimulus to human thought." Any fresh light that can be thrown on the opinions entertained by so profound a thinker, especially on the important question of ethics, is of value and hence we welcome the present work as an acceptable addition to philosophic literature. Ω.

N. B.—Owing to lack of space, reviews of a number of new works have been crowded out of the present number of *The Monist;* among which the following will appear in No. 3: *Die Entwickelung des Causalproblems in der Philosophie seit Kant*, by Dr. Edmund Koenig; *Spinoza's Erkenntnisslehre in ihrer Beziehung zur modernen Naturwissenschaft und Philosophie*, by Dr. Martin Berendt and Dr. Julius Friedländer; *Leitfaden der physiologischen Psychologie*, by Dr. Th. Ziehen; *Handbook of Psychology*, by J. M. Baldwin; *An Essay on Reasoning*, by Edward T. Dixon; *Das Dasein als Lust, Leid und Liebe*, by Hübbe-Schleiden; *Die Bedeutung der theologischen Vorstellungen für die Ethik*, by Wilhelm Paszkowski; and *Einleitung in das Alte Testament*, by Prof. C. H. Cornill.

PERIODICALS.

VOPROSUI FILOSOFII I PSICHOLOGII.* Vol. II. No. 6. September, 1891.

CONTENTS:

Positive Philosophy and the Unity of Science. By *B. Tchitcherin.*

Philosophy of the Christian Theocracy in the Fifth Century. The Cosmic Views of St. Augustine in his Genesis. By *Prince E. Trubetzkoi.*

Ethics of Life and of the Free Ideal (conclusion). By *K. N. Ventzel.*

Opinions Concerning L. N. Tolstoï. By *N. Strachoff.*

From the Philosophy of History. By *Vladimir Solovieff.*

Special Part: (1) Fundamental Moments in the Evolution of the New Philosophy. Metaphysical Philosophy: Descartes and Occasionalists. By *N. Grote.* (2) Measurableness of the Simplest Mental Acts. By *E. Tchelpanoff.*

Criticism and Bibliography. Review of Philosophical Periodicals. Book Reviews.

Appendix: 1) Recent Publications. 2) Transactions of the Moscow Psychological Society.

Positive Philosophy and the Unity of Science. This article is made up of extracts from a lengthy competitory dissertation presented by the author to the Moscow Psychological Society. The writer points out the fallacy of the "fundamental law" of the Comtist philosophy—the supposed gradual evolution of human thought through three successive phases,—the theological, metaphysical, and positive stage of development. The writer contends, that the so-called "positive stage," as conceived by Comte, is really neither positive, nor even scientific, if we examine its main foundations. As all the world knows, Comte was not satisfied with the results of the particular sciences, but wished to effect their comprehensive unity. The writer lays stress on the fact that Comte failed to perceive the inward contradiction of his whole system. His followers, in order to overcome this difficulty, were compelled to advance still another step. Despite the teaching of Comte, they recognised in mathematics the whole of a science that derived its principles from experience. This is shown by Littré in his criticism of the system of Comte (*Aug. Comte et la Philosophie positive*, page 567), where Littré refers himself to the analysis of Stuart Mill in his Logic. The author, in order to reach a definite and

* *Questions of Philosophy and Psychology.* In the Russian language.

satisfactory solution of this important problem, in his next, concluding article, will investigate the nature and alleged solidity of the mathematical principle.

The Philosophy of the Christian Clergy in the Fifth Century. In analysing the whole literary activity of St. Augustine, we observe, in the evolution of his doctrine, three stages, that closely correspond to his own personal struggle against the three heresies of his time—Manicheism, Donatism, and Pelagianism. Yet all of these three stages are characterised by one and the same principle—the ideal unity of the Christian churches. This ideal aspiration reveals itself as a kind of constructive principle of the universe; as the supreme principle of a social organisation of humanity, as the substance and contents of subjective, human freedom. The Bishop of Hippona,—after thus having developed the several aspects of his doctrine against the heresies,—sums up, and concentrates his teaching, in its widest bearings, against the heathen. Here this Christian ideal attains its fullest and final expression, and is formulated as a *Civitas Dei*, as the unity of a universal, divine Sovereignty.

Ethics of Life and of the Free Ideal. In concluding his exhaustive reflections on the subject of Guyau's system of ethics, in which the writer frequently has occasion to cite the critical parallel views of A. Fouillé and of other English and Russian philosophers, Mr. Ventzel remarks, that his aim has been, not only to introduce M. Guyau's system of ethics to his Russian readers, but also and mainly to show the relations of this system of ethics to moral obligation. The writer wishes to say in conclusion a few words about Guyau's relation to ethical sanction. Guyau rejected any moral sanction, in the strict sense of the word, that was distinguished or detached from social sanctions, as such. In this sense he conceives moral sanction and moral obligation in his Ethics of Life, in his *Equisse d'une Morale.* If life, of itself, creates an obligation to work, simply, on the strength of our capacity to work, in such case life also will create its own ethical sanction. Even when generously giving itself away, life will without fail, again and again, find itself. No matter how it be cut short, life will preserve a vivid consciousness of its fulness and significance and will reappear in some other place and under other conditions; for, truly, nothing in this world lives and works in vain.

Opinions Concerning Leon N. Tolstoï. Mr. Strachoff's psychological study would doubtless possess an additional interest to western readers if the writer had really given an exclusively Russian estimate of Tolstoï's character and intellectual activity. In this respect, however, we must not expect to find any very marked deviation from the well-known current views of the reading public of other nations. "The main cause," Mr. Strachoff observes, "why people are incensed against Tolstoï, is to be found in the fact, that, of all men, Tolstoï has most widely deviated from universally received ethical notions, and that he antagonises his century, even in certain delicate problems, that will always be the dearest to mankind. You cannot help feeling this, when you listen to the clamour, reproach, and vituperation, that have been raised against him throughout the civilised world. For the rest, it seems rather odd, that, at the close of the nineteenth century, there should have risen such a number of deadly foes against an inoffensive writer and thinker like Tolstoï; and yet, long ago, we had been accustomed to the intemperate utterances of a host of enraged freethinkers, whom we have endured with patience and meekness. Why, accordingly, have we all of a sudden lost our patient tolerance, and why are we almost ready to start a systematic persecution against the thoughts and words of a book like the *Yasnaya Polyana* (Clear Field)? . . . . It must be admitted, that there is a certain originality in his writings. Every line possesses a freshness and novelty that are entirely his own; and yet his language is tame, and the subjects even more

common than in other writers. He frequently describes the birth and death of very plain people. He tells us how these same people amuse themselves, eat, drink, and dance on feast-days, cut the hay, go to church, to confession, and so forth. Occasionally he tells how a jealous husband kills his wife,—a fact, that has been told in so many other literatures. But in anything he relates, he has the art of throwing a strong, clear light upon his subject, so that it seems to us, as if those time-worn scenes were seen and heard for the first time. In this consists the real originality of Tolstoï's art. And he is the same in his ethical teachings. They strike us by their directness, vigor, sincerity; and for this very reason they powerfully arouse our love and our yearning for those deep, spiritual cravings that invite man to lead a higher life—"to live a god-like life," Here also, at times, it appears to us, that we hear about those lofty aspirations for the first time; but when you pay close attention, you will find that his doctrine is really based on the ethics of the past, and you meet with traits of that self-same Christian doctrine with which you have been familiar from early childhood.

From the Philosophy of History. Mr. Solovieff, this time also, has chosen a title that scarcely conveys a definite idea of the aim and contents of his article, which describes the specific relations of the Christian idea to the historical evolution and political ideal of the nations of antiquity. (Moscow, 1891) *γνλν.*

MIND. October, 1891. No. LXIV.

CONTENTS:

Belief. By *G. F. Stout.*
The Physical Basis of Pleasure and Pain. (II.) By *H. R. Marshall.*
The Festal Origin of Human Speech. By *J. Donovan.*
Induction and Deduction. By *L. T. Hobhouse.*
Discussion: (1) Dr. Münsterberg and Experimental Psychology. By *E. B. Titchener.* (2) On the Origin of Music. By *H. Spencer.*
Valedictory.

Under "Belief" Mr. Stout includes every mode and degree of assent or dissent. To disbelieve a proposition is to believe its contradictory. Doubt is belief in a disjunctive judgment. In a former article he dealt with the "Genesis of the Cognition of Physical Reality." He now treats of the various kinds of real existence; as follows. *The Real in Sensation.* The real as immediately apprehended in sensation must not be confounded with the percipient mind. Sensation as such is real in so far as it limits and controls the movement of attention, by restricting the range of subjective selection. *The Real in Judgments of Comparison.* In and through the peculiar movement of attention in endeavoring to keep it fixed on *A* in the very act of fixing it on *B*, the points of agreement and difference between *A* and *B* gradually emerge into clear consciousness. *Objective Attributes of Presentation.* Dr. Pikler's theory of the psychology of Objective Existence fails to distinguish between the phenomena which are merely observed by voluntary attention and those which are actually produced by it. The act of introspection modifies more or less the mental processes which it examines. Their pre-existing strength and mode of operation can be ascertained only by elimination of the peculiar reinforcement or enfeeblement which they acquire by emergence into distinct consciousness. *The Objectivity of Space and Spatial Relations.* Although we can produce change of place by moving our bodies, according to our will, the freedom of selective selection has rigid limits imposed on it by the very nature of space. This control im-

posed on our freedom by the nature of the object constitutes its objectivity. The constant possibility of transition from one position to another is apprehended as inherent in the very nature of space independently of our will. Whenever I distinctly attend to the nature of a spatial limit, I must of necessity admit that space is boundless. What has been said about the objectivity of space in general applies *mutatis mutandis* to the objectivity of space-relations as treated by the geometrician. The psychological conditions of my subjective certitude lie ultimately in the impassable barriers, arising from the very nature of space, which confine the freedom of my constructive movement. *Reality in the Association of Ideas.* Association is a cause of belief. If certain contents of consciousness have once been copresented in a certain relation to each other, the reproduction of the one tends to bring about the reproduction of the other in the same relation in which they were originally copresented. A comparatively feeble association may command belief merely from the absence of counter-associations. This is the basis of Bain's doctrine of primitive credulity. *Subconscious Conditions of Belief.* The presentations which successively emerge into the forms of consciousness are only fragmentary portions of the total mental system. Many, if not most, of our beliefs depend on the operation of subconscious elements which, in massive combination, co-operate to support a certain connection of ideas which appears in consciousness as an object of attention. But such massive support may arise from the connexion of the belief with practical interests or æsthetic enjoyments, or with some powerful organic sensation. *Apperception and Belief.* Ideal combinations may be separable or inseparable according as this or that apperceptive system happens to be predominant. This is best seen in its pathological exaggeration in the case of suggestible patients. Under normal conditions the necessary alternation of different apperceptive masses produces a corresponding variation in the conditions of belief. *The Real in the Products of Constructive Imagination.* The work of imagination either imposes an illusion on the mind, or it does not. In both cases there is a certain reference to reality. Illusion is a temporary and often more or less imperfect belief in the product of constructive imagination; a belief which can be indirectly produced or dissipated at will. *The Real as Physical Resistance.* In the experience of the irregular interruption of otherwise continuous series of muscular sensation, which, apart from this restriction, are producible at will, we apprehend real existence. The reality, however together with that of sensation as such, being communicated to the interpretations which we are constrained to put both upon sensations and their order, gives rise by a very complex process to the presentation of a physical world. *Conclusion.* The law of conflict is the psychological counterpart of the logical law of contradiction.

In the present paper Mr. Marshall examines in detail his thesis that Pleasure and Pain are determined by the relations between the amount of activity in, and the nutritive conditions of, the organ which determines the conscious content (*Mind* No. 63). He states the psychological conditions for Pleasure to be: "A content which appears normally at regular intervals will tend to be indifferent. If it appear with hypernormal intensity or frequency suddenly in the course of the normal regularity, it will for a relatively short time appear as pleasurable, but this pleasurableness will soon fall away into indifference. The psychological condition of Pain is said to be: "If a content which has already often appeared in consciousness appear with unusual frequency or exceptional intensity, it will ordinarily be accompanied at first by pleasure, which usually will wane until the content appears indifferent. If the hypernormal stimulus continue (except as after described) the

content will become painful, and this pain will increase in amount, and having reached a maximum will decrease gradually until it disappears, but in general with it will also gradually disappear the content itself, not to reappear in consciousness for a considerable time, if ever. In some cases, however, if the content be not over intense, we may look for a gradual decrease of the pain felt at the beginning until a condition of indifference is reached." Time is an essential factor in the process of organic repair. For each organ there will be a certain time after action has ceased at which recurrent activity will be most effective. Here we have the physical basis of the gratifications obtained through rhythms. There is also a relation of rhythm to pain. The throbbing of acute pain, so far as it is not directly traceable to *pressures* of blood-supply, is probably indirectly traceable to the *rhythm* of blood-supply. Turning to Psychology proper, the laws of Pleasure-Pain may be stated in terms of Attention. Pleasure, as involving the use of stored force, implies a continuance of activity in the organ of pleasurable content, and therefore a tendency to continuance of Attention upon that content. Pain, on the other hand, implies a tendency to cessation of activity in the organ of the painful content, and therefore the disappearance of the content. The notion that pleasure is mere absence of pain is denied by this theory, which accounts for the connexion, in a broad way, between Pleasure and Pain and activities respectively advantageous and disadvantageous. In relation to Ethics this theory teaches that the *act* of will, *per se*, is pleasurable as the outcome of the conditions of opposition which are anterior to the will-act. Further, action in the direction of the greatest desire is the most pleasant action. But this does not show that the effect of habit may not be such as to lead to action against the strongest desire and away from the greatest pleasure. Further, the object of desire, whilst it may be, is not necessarily the attainment of pleasure.

A scrutiny of the psychological aspect of musical pleasure, says Mr. Donovan, will lead to the conviction that its origin required simpler psychological machinery than the origin of speech, which was possible only through the aid of that machinery. The ear is superior to the eye in respect of their relative contributions toward making up our mental life and activity. The superiority of the ear rests on its functional passivity. This allowed auditory impressions to force themselves into consciousness in season and out of season. The facts of history and ethnology which may be given a new aspect when regarded in the light of the analysis of music cover a very wide field, beginning with the first and rudest vestiges of communal sympathy and tribal glorification, and extending up to the national song or epic. It is peculiar to man to give expression to communal interest in a way which has nothing to do with life-caring instincts. That interest finds its first and rudest expression in bodily play-excitement: (1) bodily play-movements in imitation of actions, (2) rhythmic beating, (3) some approach to song, and (4) some degree of communal interest, display themselves as the most constant elements of all festal celebrations. If we start from the generally-accepted explanations of play-movements in animals, and grasp the ultimate reason why play-excitement became infused with the communal spirit, there will be no difficulty in tracing evidence of this spirit even where they are most hidden by accompanying habits. Success in a common enterprise tends to preserve it. The natural modes of expression of the communal elation follow, i. e. the bodily play-movements in imitation of the successful actions and the rhythmic beating. These movements give to consciousness preservative elements of sensation. Every step of tonal development was made in order to prove the effectiveness of the elements of sensation which could preserve the content of consciousness springing out of play-excitement and communal elation.

The attention-drawing power a musical tone possessed was enhanced by the conditions of its production, which ensured repetition in a persistent temporal succession. Animals' excited cries were both before and after the stimulating rhythmic beating—produced tones, The same excitement which impelled to these cries also impelled to rhythmic beating, and thus produced a persistent auditory model for the cries. The philologist says that roots are elements of words which analysis can reduce no further. The psychologist can trace them back to the musical tones which became reproductive agents of the vague presentative elements of actions as they had been repeatedly held together in consciousness by the psychological machinery of nascent musical pleasure.

In a previous article (*Mind*, No. 62) Mr. Hobhouse aimed at proving that all reasoning involved generalisation from observed facts, and that all such generalisation could be shown to proceed on a definite principle. There are two main ways in which Induction and Deduction may be distinguished. First we may distinguish the assertion of a universal from its application. The application of a universal to a particular case is represented by the syllogism in which the major is a general judgment and the minor a particular judgment of perception. When two judgments are compared they are found to be (1) Tautologous—the same assertion of the same fact. (2) Different statements of the same fact. (3) Assertions of different facts. A judgment expresses a relation between two terms, and hence two judgments may be said to assert the same fact when they assert the same relation between the same terms. But if either of the terms or the relation differs, then they assert different facts. Generalisation involves a universal principle connecting different facts. Syllogism does not. Syllogism appears as simply the opposite side of generalisation. In the latter we assert a universal for the first time, in the former we apply a universal already asserted. But in both we are dealing with the same relation of universal and particular. Whether we assert or apply our universal, the same ultimate logical fact, expressed in the axiom of Induction, is at the bottom of the process. But a different distinction may be drawn between Induction and Deduction. The whole process of bringing particular facts under universals by observation of similar particulars may be called Induction, while the combination of several universals in a chain of reasoning is called Deduction. In the first, Generalisation, we assert a universal on the ground of a particular, or a particular on the ground of a similar particular. In the second, Construction, we assert a relation between two universals on the ground of the relation of each to one or more intermediate relations. Construction involves generalisation at every step, and is a true reasoning process. The nature of the generalisation may be shown by the typical Deductive axiom. If, where two terms are in any way related to a third, a relation between the two is observed, then when any other two terms are similarly related to any third, the relation between these two will be similar to that observed between the first two. The simplest construction on which others rest is that of two relations to the same type, and this axiom applies to relations so understood. The axioms postulated by Reasoning lay down the conditions under which facts not presented may be known to exist, and they are thus distinguished from those principles called the "Laws of Thought."

Mr. Titchener severely criticises Dr. Münsterberg's experimental psychology, pointing out various errors, and concludes that "whether the theories of the *Beiträge* stand or fall, their experimental foundation has very little positive worth."

In reply to the criticisms in *Mind*, No. 63, Mr. H. Spencer points out that Dr. Wallaschek has overlooked a passage in which the former recognises rhythm as an

essential component of music. He does not coincide with Dr. Wallaschek's view, however, since it regards music as acquiring its essential character by a trait which it has in common with other things, instead of by a trait which it has apart from other things. It is from the emotional element of speech that music is evolved—not from its intellectual element.

After referring to the fact that harmony, as ordinarily understood and as spoken of by him, is concerned with the fundamental tones and ignores the overtones, Mr. Spencer states that he cannot accept Prof. Cattell's view that harmony has been developed from melody. To establish the evolution of the one from the other, there must be found some identifiable transitions between the combinations of tones constituting *timbre*, which do not constitute harmony to our perception, and those combinations of tones which do constitute harmony to our perception.

In his Valedictory on retiring from the Editorship of *Mind*, Professor Robertson refers to the establishment of the *Review* in 1876, on the initiative of Professor Bain, by whom it has since been sustained, and he mentions that most of the experimental research has been contributed by the American hands "that have been or are now organising psychological laboratories over all the breadth of their own land." (London: Williams and Norgate.) Ω.

INTERNATIONAL JOURNAL OF ETHICS. October, 1891. Vol. II. No. 1.

CONTENTS:

The Unity of the Ethics of Ancient Greece. By Prof. *Leopold Schmidt.*
The Problem of Unsectarian Moral Instruction. By *Felix Adler*, Ph. D.
The Theory of Punishment. By Rev. *Hastings Rashdall.*
An Interpretation of the Social Movements of our Time. By Prof. *Henry C. Adams.*
The Prevention of Crime. By Dr. *Ferdinand Tönnies.*
The Ethical Teaching of Sophokles. By Prof. *Arthur Fairbanks.*
The Right of Private Property in Land. By Prof. *J. Platter.*
Discussions.

Prof. Schmidt's article is a reply to a criticism of his work on the ethics of the ancient Greeks which had appeared in the *International Journal of Ethics.*

Dr. Adler's article is the introductory lecture of his course on Moral Instruction before the School of Applied Ethics at Plymouth. He refers first to the difficulty in the way of combining moral and religious instruction in the public schools arising from the difference in religious belief of the tax payers, and to the devices suggested to circumvent the difficulty. The first of these devices is that Catholics, Dissenters, and Jews, shall formulate a common platform of belief. There are two obvious objections to this proposal. It would leave out of account the party of the agnostics and be a gross injustice to them, and it would never content the really religious minds of any denomination. It would be acceptable only to the comparatively small class of so-called rationalists or theists pure and simple, and they have no right under the specious plea of reconciling the various creeds, in effect, to force their own creed upon the rest of the community. The second device is that religious and moral instruction combined shall be given in the public schools by persons of the several denominations. The high authority of Germany is invoked in favor of that system but Dr. Adler states that the example of Germany cannot be

quoted as a precedent owing to the relation between the state and the schools in that country. The system, moreover is not a happy one as, agreeably to Professor Smith's propositions that scientific instruction must be unsectarian and religious instruction must be sectarian, the latter ought to have no place in state schools, at least in a country where the separation of church and state is complete. To the third arrangement proposed, that each sect should build its own schools, and draw upon the fund supplied by taxation according to the number of children which it educates, there are two objections. Owing to the power of sects and their influence, direct and indirect, the rules and regulations prescribed by the state for the schools to conform to would not be enforced. And secondly, the purpose for which the public school exists would be defeated, as the sectarian schools tend to prevent the growth of that national unit which it is the very business of the public school to create and foster. The correct answer to the question as to the way in which to impart moral instruction so as to satisfy all parties will be the solution of the problem of unsectarian moral education. The answer is : It is the business of the moral instructor in the school to deliver to his pupil the subject matter of morality, but not to deal with the sanctions of it ; to give his pupils a clear understanding of what is right and what is wrong, but not to enter into the question why the right should be done and the wrong avoided. The conscience can be enlightened, strengthened, and always without once raising the question why. Professor Adler, it appears to us, overlooks the intimate connection between the two questions of what is wrong, and why is it wrong. With the "why," which is the moral sanction so-called, he excludes the criterion of right and wrong and confines himself to conventional morality. Professor Adler proposes, that the material for the moral lessons should be "the stock of moral truths accepted by all good men." This would be a very simple solution of the ethical problem. Mankind need no longer remain in doubt as to what good and bad is. We have only to accept the propositions of "all good men." But where is the judge that shall decide who are to be considered as good men ? Either Professor Adler considers his own views of moral goodness as authoritative and ultimate or his reasoning moves in a vicious circle.

Professor Tönnies and the Rev. Hastings Rashdall discuss punishment as a preventive of crime. Professor Adams finds that the genius of invention established the factory system replacing the old domestic system of industry. The change of a society based upon tools into a society based upon machinery means that the worker has lost control over the conditions of labor which he now tries to regain. Arthur Fairbanks says that according to the ethics of Sophokles, conscience was sense of conformity to an æsthetic ideal. J. Platter of Zürich rejects Henry George's theory as "nonsense." (Philadelphia : *International Journal of Ethics*, 1602 Chestnut Street.) ωκ.

RIVISTA ITALIANA DI FILOSOFIA. September and October, 1891.

CONTENTS :

L'IMMAGINAZIONE NELLE SUE RELAZIONI NORMALI E MORBOSE COLLA SENSIBILITA. By *L. Ambrosi.*

L'ORIGINE INDIANA DEL PITAGORISMO SECONDO L. VON SCHRÖDER. By *P. D'Ercole.*

LUIGI VIVES, PEDAGOGISTA DEL RINASCIMENTO. By *A. Piazzi.*

LA FILOSOFIA DI EMPEDOCLE. By *S. Ferrari.*

Imagination in its normal and diseased relations to sensibility. The writer calls our attention to the endless variety of different and apparently contradictory things

that are usually attributed to the faculty of imagination. To some this faculty of the human mind is the main cause of human errors, and with Montaigne they call it "la folle du logis"; but to others, imagination plays a rather important part in the discovery of great scientific theories. All unanimously admit, that imagination lends fuel to the flames of all kinds of evil passions; but on the other hand it cannot be denied, that imagination sustains the will in every work of great stress, or great sacrifice, by the vivid representation of an expected final success. All human votaries and possessors of this fleeting, inconstant mental faculty are by turns "happy, unhappy, sane, sick, wealthy or poor; it makes us believe, doubt, or deny reason; it makes fools and sages." (Pascal, *Pensées*, Art. 3, § 3). Yet how can the psychologist reconcile all this; how can he find the different circumstances, through which one and the same cause produces such an endless variety and discrepancy of facts? Several psychologists, who have tried to follow the flights of imagination throughout all its different manifestations by the sole aid of style and language, have been poets rather than true philosophers. Such was Delille in his poem *l'Imagination;* and such was even Professor Mantegazza himself, in that chapter of his *Physiology of Pleasure*, which he has dedicated to the "Gioie della fantasia," where he describes this faculty with far more enthusiasm than scientific precision. Bonstetten, in his *Recherches sur la nature et lois de l'imagination*, Genève, 1807, is supposed to have been the first to give a minute and exclusively psychological analysis of imagination; but his investigations seem to prove, that a delicate subject of this kind, like certain volatile essences, evaporates at the moment we wish to analyse it, and cannot be defined by any strict scientific formulas and classifications. And yet, if we really wish to study the psychology of imagination, we must not be frightened by these difficulties, or regard them as insurmountable. We may not be able to reduce all these varied phenomena to very definite and limited categories, but it does not follow from this, that we have only to make a simple, empirical registration of these phenomena. As Michaut observes (*L'Imagination*, Introduction): "Wherever we find a general element, there also we shall find room for science." Despite the inconstancy of the phenomena, it remains true, that also in the facts of imagination there is something constant and regular; that they are subject to laws, which might be probably severed from the phenomena, and be reduced to a certain unity and uniformity, without forgetting, at the same time, that this fleeting and delicate subject is not always reducible to absolutely strict classification.

How are we, accordingly, to obtain that harmony and unity of view, that will unite and group all those diversified manifestations? Mind cannot be conceived as a collection of different states, but we have to assume, that within the Psyche there is something substantial; there is unity, constancy in its energy; and that this side of its being is also the principle of its transitory actions. We recognise therefore the existence of two distinct sources of spiritual energy, that will better make us understand the diversity of its products: on the one side, the soul itself, with the formal laws of its simple being, and, on the other side, the power or force of its sensible representations,—of its reactions. This distinction, applied to the present problem, will on the one hand cause us to consider images as the products of an activity of an inferior order, called psyche soul, but we shall behold on the other, that same soul, when it has freed itself from the tyranny of the senses, itself becoming properly what is called mind, its emancipation rising to the higher function of arranging and organising the images produced by the aid of the senses. Hence follows, that the relations of either conflict or harmony which these products of the soul have among each other, and to mind proper, will serve as a criterion of a clas-

sification, in which we have to take note: (1) of the reciprocal action between sensations and images; (2) of that between images and images; (in both of which instances the power of the products possesses an advantage over the power of mind;) and (3) of the action of mind upon images. By this road it will be possible to follow all the phases of the evolution of mind from the moment when overcome by obstinate images it is reduced to a life of disorder, incoherency, or, as it were, to death of mind, until the moment when in its own turn mind takes hold of the numerous images by which it is besieged, and by subjecting them to its own laws—to laws of unity and harmony—it creates out of that disorderly chaos of images the wonderful synthesis of science and works of art. From that instant we behold mind rise through a series of intermediate stages, from abject servitude to the loftiest heights of freedom, from a state of humiliating impotency to an unhampered display of its true, inward activity,—from folly to genius. In other words, it is chiefly this psychic activity, in all its different stages of development and power, that must be our guiding criterion in the study of the phases and phenomena of imagination.

The writer, thereupon, seeks to explain the nature of this psychic activity in its application to images. He briefly investigates the origin of images, their immediate derivation from the sensations, and their intimate reciprocal connection, by virtue of which the one cannot be produced without the other; and whence there arise many different relations, that not only explain, but even enable us to classify a large number of facts relating to this mental faculty. The writer concludes with some general remarks on the diseases of imagination.

The Hindu Origin of Pythagorism according to L. von Schroeder. This article was suggested by Dr. L. v. Schroeder's monograph: *Pythagoras und die Inder. Eine Untersuchung über die Herkunft und Abstammung der Pythagorischen Lehren.* The discussion about the local origin of Pythagorism began with the ancients themselves, is being continued in our own time, and, from the nature of the subject itself, bids fair to be protracted for an indefinite period still. In recent times this arduous problem has invaded the domain of comparative ethnology, comparative religion, philology, in brief, of all the historical sciences, receiving, doubtless, striking and copious illustrations from all these, yet at the risk of almost losing sight of itself. In Pythagorism, as in certain other products of the human mind, it is difficult to discriminate with absolute historical certainty between "mine" and "thine." The real solution of the problem may perhaps be found in the original unity of the evolution of the Indo-European mind. The writer, however, views the problem simply as one of comparative religion and the history of philosophy. The ancients advocated the Italic, or Tyrrhenian origin of the Pythagorean system, and among modern Italians, Vico and Gioberti have done the same. The Chinese origin was defended by Gladisch. The third, the Egyptian origin, also dates from antiquity, and in modern times has been ardently defended by Roth. The fourth, the supposed Hellenic origin, has had the greatest number of followers, and has been ably championed by Dr. Edw. Zeller in his work, *Die Philosophie der Griechen.* As regards the last, the alleged Hindu origin, this was suggested of course by the numerous striking analogies found between Hindu and Pythagorean doctrine. Still, all that has been said on the subject by Schroeder, Max Müller, Weber, and others, has failed to thoroughly convince the writer. In his next article he promises to show, that everything has induced him to believe that the Hindus themselves rather borrowed their doctrine of transmigration from the philosophical system of Pythagoras.

Luigi Vives. A Pedagogist of the Renaissance. The interesting subject of this

article is probably to this day but little understood or appreciated by the pedagogists of northern Europe. To this day, many among them seem ignorant of the fact, or, perhaps, are unwilling to frankly admit, that along with the Catholic revival, and the intellectual renaissance of the Latin nations, there was initiated the tradition of really humane pedagogics, founded on the nature of man, and, in its aim and workings, vastly superior to the educational systems of the nations beyond the Alps. It was an earnest, liberal, refining educational system, that professed an affectionate regard for youth. It banished corporal punishment, and addressed itself directly to the heart and the intelligence. The Jesuit maxim : "debetur pueris maxima reverentia," still recalls the original spirit of this humane system of education. It is perhaps not an exaggeration to maintain, that, in the spirit of the time, it also aimed at the *beautiful* in education. It was a declared enemy to any thought, speech or action in *bad form*. To the subject of this article, the Spanish bishop of Valencia, Louis Vives, is due the honor of having been one of the most ardent and successful promoters of this new educational system, and to have been the Jean Jacques Rousseau of his time. Vives was born in the year 1492, and died in the year 1540. He had studied at the University of Paris, and was an intimate friend of Erasmus of Rotterdam. He is moreover the author of a number of valuable educational works. Bishop Vives, however, must also be regarded as a clergyman, who in his practical career would at times find it difficult to reconcile his broad-minded scholastic ideals with the duties of his calling, and with the exaggerated ascetical tendencies by which he was surrounded. As a matter of fact, in a short time the church is seen practically to override all this liberal educational movement of the renaissance. Within the college- and convent-walls, in the Latin countries, the humane paternal pedagogics of the renaissance soon and easily degenerated into oppressive, injurious, personal surveillance, and an odious theocratic tyranny. With all our sincere admiration for the work initiated by men like Louis Vives, we must nevertheless maintain, that all, or nearly all, the ecclesiastic educational systems of the Latin countries during the following centuries, can scarcely lay valid claims to a place within the pale of true pedagogical science.

The Philosophy of Empedocles. In this concluding article the writer exhaustively discusses the religious tenets and ethical precepts of Empedocles, as both appear in the Proëmium, in the third book on Physics, and in the poem of the "καθαρμοί"—or expiatory atonements.

Bibliography. In this department we notice a lengthy review of Prof. E. Dal Pozzo di Mombello's *Lectures on Monism*, delivered at the University of Perugia. In this number are also contained the *Bollettino Pedagogico Filosofico*, *Critical Notices*, and *Recent Publications*. (Rome. Tipografia delle Terme Diocleziane. 1891.) *γνλν.*

REVUE PHILOSOPHIQUE. November, 1891. No. 11.

CONTENTS:

Les origines de notre structure intellectuelle et cérébrale. I. Le Kantisme. By *A. Fouillée.*

Du rôle de la volonté dans la croyance. By *J. J. Gourd.*

In discussing the part of the will played in belief, M. J. J. Gourd considers our belief in an ultra-phenomenal reality which he calls "metaphysical belief." "All thought," he says, "involves a relation, viz. a relation between subject and object. Every relation presupposes a comparison of its terms and this comparison

is not established if the subject and object belong to different worlds. The subject is undoubtedly found in consciousness, the object must be there also. All the ingenious arguments to escape this conclusion are vain. Accordingly, one may well believe in the truth of the metaphysical belief, but this belief is not true."

M. G. Tarde, the great criminologist and an opponent of Professor Lombroso's school reviews the penological and criminological literature of recent times in France, Italy, and Belgium.

Alfred Fouillée revises in the article on "the origin of our intellectual and cerebral structure" several solutions of the problem of the nature of thought-forms, especially Kant's view of the *a priori*. Strongly influenced by Schopenhauer, he makes of the great pessimist's will-theory quite an original and peculiar application and finds that the question of "*idées-forces*" is also at the bottom of the question of the origin of ideas. In comparing the origin of ideas to the origin of solar systems, he says: "Ideas are the condensation of that which exists everywhere in a nebulous state into luminous centres and conscious focuses. Sensation is desire." And he sums up his view in the sentence: "Nihil est in intellectu quod non prius fuerit in sensu et voluntate." (Paris: Félix Alcan.)" *κρς.*

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Vol. II. No. 5.

CONTENTS:

Die Sinne der Verbrecher. By *C. Lombroso* and *S. Ottolenghi.* (Mit 4 Figuren.)

Ueber Vergleichungen von Tondistanzen, By *Gustav Engel.*

Litteraturbericht.

Cesare Lombroso and his assistant S. Ottolenghi communicate the results of their investigations of the senses of born criminals in a similar way as the former of the two had done in his "Studies in Criminal Anthropology," *The Monist*, Vol. i, No. 2, p. 177 et sqq. Our authors say: "Since the days of the famous Greek sage who said that nothing came into the intellect save through the gateway of the senses, it could be foreseen that a study of the senses would become the gateway to ethics." And, it is a fact recognised for some time but not as yet proved by exact methods that a lack of moral sense is often accompanied with an obtusity of the sense-organs. Dr. Azam's famous Felida showed an entire absence of the moral sense when she was in a state of analgesia; Romanes has pointed out that the sensitiveness to pain is greater in tame animals than in wild beasts, this is especially noticeable in the dog. It is noteworthy also that savage peoples are almost insensible to pain while civilisation often increases sensibility till it becomes hyperæsthesia.

Obtusity of the sense-organs in criminals should not be confounded however with the anæsthesia of criminals, because the rarity of laterality, the absence of isolated insensible places, the lack of motory anomalies, etc., exclude the supposition of hysteria.

Our authors found among 15 criminal boys between 10 and 14 years no less than ten cases of absolute analgesia, which proves that this symptom cannot be the effect of alcoholism, syphilis, marasmus, or overwork of a special trade.

Several anecdotes are told about the insensibility to pain. An old thief had his leg amputated with the greatest apathy; the operation done, he took the limb into his hand and joked about it. An inveterate murderer, his penal servitude being

ended, was dismissed out of the bagnio of the island S. He asked the warden to be retained, because he did not know how to get food and shelter. His demand being refused, he opened his bowels with the handle of a spoon, went to bed as usual, and died without even a sigh. Mandrin, a criminal, shortly before his execution allowed himself to be cut in eight places without giving a sign of pain ; criminal R. flayed the skin of his face with a piece of glass. In the penitentiary at Chatham during the years 1871 and 1872, 841 voluntary wounds and injuries were made. Among them 27 convicts had mutilated some limb, and in 17 cases the limb had to be amputated.

This obtusity of the sensory organs in criminals is supposed to be of a cortical origin and being similar to the phenomena of savage life is interpreted as atavism. Criminals show deficiencies in the senses of touch, smell, taste, and hearing, but not of sight. And this is analogous to the savage in whom the sense of sight is naturally very strong, and no criminal could execute numerous thefts or escape the arm of justice without a high development of the sense of sight.

In the second article on comparisons of tone-distances Gustav Engel, Professor at the Royal High-school of Music in Berlin, takes occasion to explain his views of the subject with reference to the severe criticism of C. Stumpf on Carl Lorenz's theory. Wilhelm Wundt had taken part in the discussion in favor of Lorenz. The subject of the article lies in the border-land between the physiology of hearing and music ; and Professor Engel comes to the conclusion that affinity of tones, i. e. the interval-sense in a melodious succession does not lead to the same accuracy and reliability of hearing as their concord. He objects to the idea of an arithmetical difference as proposed by Lorenz and Wundt, and proves it through the fact that the Pythagorean tierce in the unaccompanied scale makes a less noticeable disturbance than in a concord, while the approximately pure tierce (which is too low only by a small fracture of a comma) is excellent in the concord while it causes a slight disturbance in the melody. Musical intervals are not identical with the geometrical intervals, yet they are based upon them as a selection made among innumerable possibilities for certain purposes. Their acceptance is established only in harmonic music, but this fact too adds some difficulties to the investigations made in this field, for if two tones sound together, we can no longer distinguish them separately, as would be required for the investigation ; and if we let the one succeed the other their geometrical relation is no longer discerned with the same precision. (Hamburg and Leipsic : Leopold Voss.) κρς.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Vol. XV. Nos. 3 and 4.

CONTENTS of No. 3 :

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Die Gesetzmässigkeit der physischen Activität. By *H. Höffding.*
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Ueber Sprachreflex, Nativismus und absichtliche Sprachbildung. (Neunter Artikel). By *A. Marty*.

Ueber Fernwirkung und anormale. Wahrnehmungsfähigkeit. Methodologische Randglossen. By *M. Offner*.

Prof. H. Höffding's article on psychical and physical activity is an answer to a criticism by Professor Kroman. Professor Höffding had proposed, concerning the relation of the psychical to the physical, a theory which he called the "identity hypothesis," according to which the physical and psychical activities are not different in their nature but only in their phenomenal appearance. K. Kroman, a countryman and colleague of H. Höffding—both are professors at the University of Copenhagen—rejected in his recent work "Logic and Psychology" the identity hypothesis and characterised it as "Duplicism," a name against which Höffding protests. Kroman's objections are as follows: *a*) Natural science knows of no reason to conceive of the relation of the psychical to the material in the way expressed by the identity-hypothesis. *b*) On the basis of the identity-hypothesis it remains unexplained how we can know anything about the external world. *c*) It is inexplicable how an identity can obtain of two so different things as are the bodily multiplicity and the psychical unity. Professor Höffding investigates these three objections separately and comes to the conclusion that his identity-hypothesis shows the relation between the psychical and material nature in a clear and simple light. It excludes on the one hand materialism and on the other hand spiritualism. The question whether either phenomenon, spirit or matter, represents the absolute nature of existence, cannot, according to Höffding, be answered. It appears to us that Professor Höffding's position is sound in all main points and may be considered as that view which is most prevalent among modern psychologists. However, concerning the question whether spirit or matter represents the absolute nature of existence, we refer the reader to the editorial article "Are there Things in Themselves?" section XII, "The Oneness of Subjectivity and Objectivity." In our opinion the question itself is illegitimate. Neither the subjectivity of spirit, nor the objectivity of matter represents the absolute nature of existence; both together form the nature of existence; and we omit here the word "absolute" purposely. The question as to which abstract, matter or spirit, represents the absolute nature of existence seems to us similar to the question which of the two terms A and B represents in the relation $A : B$ the absolute nature of the relation. The obvious answer is neither.

The eighth article of A. Marty of Prague on Language-reflex is mainly of a controversial nature directed against L. Tobler's article on the origin of language in the *Zeitschrift für Völker-Psychologie*. By Nativism, Marty understands the theory that certain involuntary articulate sounds are associated with certain ideas, while the so-called empirical theory attempts to explain the origin of the first words without such innate mechanical relations between sounds and concepts. Marty represents the empirical solution of the problem and objects to the extreme nativism, but he grants that Tobler's modified nativism approaches very much to his own position.

The longest article of the present number (63 pp.) is an essay full of valuable hints by Chr. v. Ehrenfels on the Philosophy of Mathematics. The epistemological basis of mathematics demands a psychological investigation of its contents. Accordingly the author proposes to present a psychological characterisation of the

number-conceptions, from which he derives some conclusions concerning the theory of cognition. He investigates the origin of the unity conception which is generally defined as "positing a unit" or as "conceiving as a unit." We usually believe that we abstract numbers directly from the objects, when we look for instance at one house with two doors and five windows. But this process of abstraction is not quite so direct as it seems. The number-conception is not taken from external observation, but carried into the same; yet this is done involuntarily and inadvertently so that it appears as if they were *eo ipso* contained in it.

What is the origin of the concepts "unity" and "multiplicity"? Two methods present themselves: 1) The concentration of attention and (2) the act of bringing into relation. The former produces a unity and, when successively directed to several objects, a series of units. The latter appears to be required by the consideration that the conception of a number is conditioned by acts of distinguishing. The number "two" requires two acts of distinguishing, "three" requires three, "four" requires six and the number n requires $\frac{n}{2}(n-1)$ acts of distinguishing. This explains why we can have clear and direct conceptions only of very low figures. The idea that a combination of both methods will explain the facts is by no means excluded. But there is a third source which may be used to explain the unity conception, viz. inner experience. "The unity of consciousness," Ehrenfels says, "has been misused in philosophy to demonstrate the substantiality, simplicity, and indestructibility of the soul." Nevertheless there is some truth in the unity idea, for the present psychical phenomena present themselves in a peculiar amalgamation, which admits of a comparison between two elements while it erects a barrier between the *ego* and the *tu*. Our psychical contents will always appear to us as a unit; and on this basis we might declare that the unity conception is derived from this source. [Here Ehrenfels does not see that the concentration of attention is practically the same as the unity of consciousness, for attention means consciousness, and concentration produces unity.]

Number-conceptions originate by counting. We disjoin things; for instance, we throw a number of apples into a basket, or we let the finger slide over the division lines of a measuring stick naming each unit while proceeding in the act. From such processes the function of counting can be abstracted while the details are neglected as unimportant. Most of the higher numbers are never directly but only indirectly realised. So for instance twenty is to many that number which will be reached by counting up to twenty, yet the single units of the number are lost sight of entirely. Such number-conceptions belong to the class of "indirect concepts" which represent objects not through marks belonging to the object itself, but originating through its relation to other objects. The basis of such indirect concepts had been called by Ehrenfels *Gestaltsqualitäten*, i. e. figure qualities, and by Meinong *fundirte Inhalte* or founded contents. Thus indirect conceptions are parts contingent upon some such basis.

Number-conceptions are not always clearly thought out and there are some helps to represent higher or more complex numbers. Thus we can think of ten as represented by the outside and inside corners of a pentagram, twelve as the edges of a cube, etc., and common among all nations is the usage of the fingers to represent numbers up to ten. Such helps are quite different from indirect number-conceptions and may be called figurative number-conceptions.

That there are mathematical conceptions of magnitudes which have no objective analogon is quite natural, for there is even in an indirect conception no warrant for

its objective reality; and we ought to consider how many word- and idea-combinations are possible without their possessing some analogous reality. Yet the so-called irrational cannot properly be called a number, it is the demand of a number which in fractions can sufficiently for certain purposes but never fully be realised.

Negative numbers always presuppose a contrast and such conditions arise naturally wherever the fundamental ideas imply two opposite directions, for instance past and future in time, credit and debit in business, etc. It is a matter of course that there are in reality as little either positive or negative numbers, as there are positive or negative colors or sounds.

Concerning the necessity idea, Ehrenfels says: "Nobody will consider it as possible that five plus seven will in some cases make any other number than twelve. We are confident that the same addition will under all circumstances yield the same sum. Ehrenfels grants the psychical certitude of this but not the mathematical, and thinks that on this point there is a difference of opinion allowable. Here we disagree from Ehrenfels and refer the reader to former articles on kindred subjects in *The Monist*, especially the article on "The Origin of Thought-forms," Vol. II, p. 111. We must bear in mind that in mathematics we are moving in a realm of pure forms and the statement $7 + 5 = 12$ is, as the Germans express it, *eindeutig bestimmt*, i. e. it is determined exhaustively in one and the only one possible way. The numbers 7 and 5 being rigid, their sum and their product will also be rigid.

This difference of opinion may be contingent upon a difference of the conception of the *a priori*. Ehrenfels defines as "a priori" such judgments which having come into our possession, are readily accepted without proof. We follow Grassmann in rejecting the acceptance of anything without proof, including the idea of mathematical axioms. The *a priori* in our terminology becomes identical with that which pertains to formal thought; and it would make no difference whether the instance presented is as simple as $1 + 1 = 2$ or extremely complex as are the differential calculus and logarithms. Accordingly we disagree also from Ehrenfels when he finds even in such additions as for instance $825 + 217 = 1042$ vestiges of an *a posteriori* character. The employment of the logarithms accordingly appears to Ehrenfels also *aposterioristic* because the fruits of other peoples' labors are utilised!

Concerning John Stuart Mill's view of the subject, Ehrenfels says that "it is still deeply entangled in the errors of that conception which it so bitterly opposes, viz. in the formalism of the old purely *a priori* conception. For only he who adheres to the view that all mathematics are deduced from a few axioms can think of attributing to those axioms the highest degree of plausibility which is assumed for them on the ground of comprehensive deduction." We agree with Ehrenfels's objection to Mill, but we cannot agree with his view that mathematics derives any elements from *a posteriori* elements, although we grant that quite new departments are created simply by a different employment of certain functions. Accordingly mathematics cannot be derived from a few axioms only but is the products of certain functions.

Ehrenfels calls attention to the fact that the mathematician operating with symbols often forgets entirely what he has to think of in connection with these symbols. "This is not strange," he adds, "for thoughtless word-combinations present analogous instances, yet it is strange that the result almost without exception comes out right; *es stimmt!*" We object here; operations with mathematical symbols are not thoughtless combinations, at least, they are not meaningless. They are operations not with things, but with symbols representing certain relations among

things. When gamblers play with chips representing real money, they need not think during the game of the value represented by a chip, and yet when the account is made, the result attained with the assistance of the chips will come out right. There is no reason to wonder at it. Chips like mathematical symbols might in a certain sense be called thoughtless, for certainly they do not think; but they are not thoughtless in the sense that they are meaningless, that nothing is thought by them.

Ehrenfels apparently sees a problem where there is none and this is closely connected with another point. He looks upon the mathematician's inability of thinking out in every respect the objective meaning of mathematical symbols as a shortcoming of man's intellect. While it appears that we cannot think anything by many mathematical symbols (for instance by $a^0 = 1$) except the symbol itself, the enormous success of mathematical thought is evidence that they must have some definite meaning although it is to be excogitated only by those beings who will transgress the average intelligence of to-day, the first germs of whose existence are the mathematical geniuses of the present generation. It appears to us that undoubtedly every mathematical symbol has a definite meaning, representing the result of some function. That the result will sometimes be unattainable or unrealisable, that especially all operations with zero make the whole calculation indefinite (which naturally arises from the nature of zero) does not alter the truth of this proposition in the least.

We have to make one additional remark. The peculiarity of mathematics that we do not throughout our operations think out the meaning of the symbols is not a shortcoming of our intelligence, but the strength of mathematical science. The advantage of all the formal sciences and especially of mathematics consists in this that we *need not* think out every detail, but that we can, through the assistance of mathematical symbols, perform the most intricate operations with machine-like exactness. The economy of thought produced in this way is not a deficiency of man's mind, but a virtue.

Prof. H. Höffding (in No. 4) insists upon the causal law as being indispensable in psychology. There are some people and among others his colleague Professor Kroman who regard moral motives as an exception. "Yet," says Professor Höffding, "should the decisive moment of a decision not be determined by the causal law, the will could never be determined through a reflection on the possible effects of the action and thus every reason would be missing to attribute to man any responsibility."

E. Grosse expatiates on the proposition to apply the comparative method of ethnology to æsthetics. Ferd. Rosenberger proposes the following programme: "Knowledge is power; activity based upon such power is the cause of happiness. Therefore with the increase of knowledge, there is an increase of happiness, successful activity however is impossible without virtue. Therefore we conclude that an increase of happiness will be accompanied with an increase of virtue." A. Marty in this his ninth article blames Steinthal for having misrepresented the eighteenth century theories of the origin of language.

M. Offner reviews Dr. Charles Richet's reports of his telepathic experiments, but the reviewer cannot assent to Richet's opinion "that these facts possess a strange coincidence and that they are, probably, the result of a relation and not of pure chance." (Leipsic: O. R. Reisland.) κρς.

PHILOSOPHISCHE MONATSHEFTE. Vol. XXVIII. Nos. 1 and 2.

CONTENTS:

ZUM BEGRIFF DER UNBEWUSSTEN VORSTELLUNG. By *E. v. Hartmann.*

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LITTERATURBERICHT.

The well-known philosopher Edward von Hartmann defines his position with reference to the idea of an unconscious representation. Granting that there are no unconscious sensations, perceptions, conceptions or memories, because feeling either is conscious or not at all, he introduces the idea of unconscious representations again as the most adequate determination. He says, "Either we must renounce all speaking and thinking of non-sensual objects or we must be satisfied with using figurative expressions."

M. J. Monrad, a Norwegian, argues, in the second article against M. E. Renan's theory of prayer, whom he had visited some years ago in Paris, that prayer has after all an effect upon the objective world and it is not limited to a merely subjective and psychological influence. Monrad presupposes a belief in God, prayer bringing the individual in unison with God, changes the will of the individual into a co-ordinate willing of God and thus renders the individual a co-worker of God. This, however, should not be conceived to take place by magic and in contradic tion to nature, but through nature, man using the laws of nature.

F. Tönnies of Kiel gives an exposition of Mr. Spencer's social views which are, briefly expressed, "the final victory of society over the state." Professor Tönnies answers that "we all want a higher civilisation, but the development of a higher civilisation is not conditioned by the final victory of society over the state. On the contrary, it may be said that it depends upon a victory of the state over society in so far as public rights will supersede private rights. . . . The truth is that state and society are contingent, the one upon the other and also limiting each other.' (Berlin: Dr. R. Salinger.) κρς.

VOL. II. APRIL, 1892. NO. 3.

THE MONIST.

THE DOCTRINE OF NECESSITY EXAMINED.

IN *The Monist* for January, 1891, I endeavored to show what elementary ideas ought to enter into our view of the universe. I may mention that on those considerations I had already grounded a cosmical theory, and from it had deduced a considerable number of consequences capable of being compared with experience. This comparison is now in progress, but under existing circumstances must occupy many years.

I propose here to examine the common belief that every single fact in the universe is precisely determined by law. It must not be supposed that this is a doctrine accepted everywhere and at all times by all rational men. Its first advocate appears to have been Democritus the atomist, who was led to it, as we are informed, by reflecting upon the "impenetrability, translation, and impact of matter (*ἀντιτυπία καὶ φορὰ καὶ πληγὴ τῆς ὕλης*)." That is to say, having restricted his attention to a field where no influence other than mechanical constraint could possibly come before his notice, he straightway jumped to the conclusion that throughout the universe that was the sole principle of action,—a style of reasoning so usual in our day with men not unreflecting as to be more than excusable in the infancy of thought. But Epicurus, in revising the atomic doctrine and repairing its defences, found himself obliged to suppose that atoms swerve from their courses by spontaneous chance; and thereby he conferred upon the theory life and entelechy.

For we now see clearly that the peculiar function of the molecular hypothesis in physics is to open an entry for the calculus of probabilities. Already, the prince of philosophers had repeatedly and emphatically condemned the dictum of Democritus (especially in the "Physics," Book II, chapters iv, v, vi), holding that events come to pass in three ways, namely, (1) by external compulsion, or the action of efficient causes, (2) by virtue of an inward nature, or the influence of final causes, and (3) irregularly without definite cause, but just by absolute chance; and this doctrine is of the inmost essence of Aristotelianism. It affords, at any rate, a valuable enumeration of the possible ways in which anything can be supposed to have come about. The freedom of the will, too, was admitted both by Aristotle and by Epicurus. But the Stoa, which in every department seized upon the most tangible, hard, and lifeless element, and blindly denied the existence of every other, which, for example, impugned the validity of the inductive method and wished to fill its place with the *reductio ad absurdum*, very naturally became the one school of ancient philosophy to stand by a strict necessitarianism, thus returning to the single principle of Democritus that Epicurus had been unable to swallow. Necessitarianism and materialism with the Stoics went hand in hand, as by affinity they should. At the revival of learning, Stoicism met with considerable favor, partly because it departed just enough from Aristotle to give it the spice of novelty, and partly because its superficialities well adapted it for acceptance by students of literature and art who wanted their philosophy drawn mild. Afterwards, the great discoveries in mechanics inspired the hope that mechanical principles might suffice to explain the universe; and though without logical justification, this hope has since been continually stimulated by subsequent advances in physics. Nevertheless, the doctrine was in too evident conflict with the freedom of the will and with miracles to be generally acceptable, at first. But meantime there arose that most widely spread of philosophical blunders, the notion that associationalism belongs intrinsically to the materialistic family of doctrines; and thus was evolved the theory of motives; and libertarianism became weakened. At present, historical criticism has almost exploded the miracles, great

and small; so that the doctrine of necessity has never been in so great vogue as now.

The proposition in question is that the state of things existing at any time, together with certain immutable laws, completely determine the state of things at every other time (for a limitation to *future* time is indefensible). Thus, given the state of the universe in the original nebula, and given the laws of mechanics, a sufficiently powerful mind could deduce from these data the precise form of every curlicue of every letter I am now writing.

Whoever holds that every act of the will as well as every idea of the mind is under the rigid governance of a necessity co-ordinated with that of the physical world, will logically be carried to the proposition that minds are part of the physical world in such a sense that the laws of mechanics determine everything that happens according to immutable attractions and repulsions. In that case, that instantaneous state of things from which every other state of things is calculable consists in the positions and velocities of all the particles at any instant. This, the usual and most logical form of necessitarianism, is called the mechanical philosophy.

When I have asked thinking men what reason they had to believe that every fact in the universe is precisely determined by law, the first answer has usually been that the proposition is a "presupposition" or postulate of scientific reasoning. Well, if that is the best that can be said for it, the belief is doomed. Suppose it be "postulated": that does not make it true, nor so much as afford the slightest rational motive for yielding it any credence. It is as if a man should come to borrow money, and when asked for his security, should reply he "postulated" the loan. To "postulate" a proposition is no more than to hope it is true. There are, indeed, practical emergencies in which we act upon assumptions of certain propositions as true, because if they are not so, it can make no difference how we act. But all such propositions I take to be hypotheses of individual facts. For it is manifest that no universal principle can in its universality be compromised in a special case or can be requisite for the validity of any ordinary inference. To say, for instance, that the demonstration by Archimedes of the property of

the lever would fall to the ground if men were endowed with free-will, is extravagant; yet this is implied by those who make a proposition incompatible with the freedom of the will the postulate of all inference. Considering, too, that the conclusions of science make no pretence to being more than probable, and considering that a probable inference can at most only suppose something to be most frequently, or otherwise approximately, true, but never that anything is precisely true without exception throughout the universe, we see how far this proposition in truth is from being so postulated.

But the whole notion of a postulate being involved in reasoning appertains to a by-gone and false conception of logic. Non-deductive, or ampliative inference is of three kinds: induction, hypothesis, and analogy. If there be any other modes, they must be extremely unusual and highly complicated, and may be assumed with little doubt to be of the same nature as those enumerated. For induction, hypothesis, and analogy, as far as their ampliative character goes, that is, so far as they conclude something not implied in the premises, depend upon one principle and involve the same procedure. All are essentially inferences from sampling. Suppose a ship arrives in Liverpool laden with wheat in bulk. Suppose that by some machinery the whole cargo be stirred up with great thoroughness. Suppose that twenty-seven thimblefuls be taken equally from the forward, midships, and aft parts, from the starboard, centre, and larboard parts, and from the top, half depth, and lower parts of her hold, and that these being mixed and the grains counted, four fifths of the latter are found to be of quality *A*. Then we infer, experientially and provisionally, that approximately four fifths of all the grain in the cargo is of the same quality. I say we infer this *experientially* and *provisionally*. By saying that we infer it *experientially*, I mean that our conclusion makes no pretension to knowledge of wheat-in-itself, our ἀλήθεια, as the derivation of that word implies, has nothing to do with *latent* wheat. We are dealing only with the matter of possible experience,—experience in the full acceptation of the term as something not merely affecting the senses but also as the subject of thought. If there be any wheat hidden on the ship, so that it can neither turn up in the sample nor be heard

of subsequently from purchasers,—or if it be half-hidden, so that it may, indeed, turn up, but is less likely to do so than the rest,—or if it can affect our senses and our pockets, but from some strange cause or causelessness cannot be reasoned about,—all such wheat is to be excluded (or have only its proportional weight) in calculating that true proportion of quality *A*, to which our inference seeks to approximate. By saying that we draw the inference *provisionally*, I mean that we do not hold that we have reached any assigned degree of approximation as yet, but only hold that if our experience be indefinitely extended, and if every fact of whatever nature, as fast as it presents itself, be duly applied, according to the inductive method, in correcting the inferred ratio, then our approximation will become indefinitely close in the long run; that is to say, close to the experience *to come* (not merely close by the exhaustion of a finite collection) so that if experience in general is to fluctuate irregularly to and fro, in a manner to deprive the ratio sought of all definite value, we shall be able to find out approximately within what limits it fluctuates, and if, after having one definite value, it changes and assumes another, we shall be able to find that out, and in short, whatever may be the variations of this ratio in experience, experience indefinitely extended will enable us to detect them, so as to predict rightly, at last, what its ultimate value may be, if it have any ultimate value, or what the ultimate law of succession of values may be, if there be any such ultimate law, or that it ultimately fluctuates irregularly within certain limits, if it do so ultimately fluctuate. Now our inference, claiming to be no more than thus experiential and provisional, manifestly involves no postulate whatever.

For what is a postulate? It is the formulation of a material fact which we are not entitled to assume as a premise, but the truth of which is requisite to the validity of an inference. Any fact, then, which might be supposed postulated, must either be such that it would ultimately present itself in experience, or not. If it will present itself, we need not postulate it now in our provisional inference, since we shall ultimately be entitled to use it as a premise. But if it never would present itself in experience, our conclusion is valid but for the possibility of this fact being otherwise than assumed, that is,

it is valid as far as possible experience goes, and that is all that we claim. Thus, every postulate is cut off, either by the provisionality or by the experientiality of our inference. For instance, it has been said that induction postulates that, if an indefinite succession of samples be drawn, examined, and thrown back each before the next is drawn, then in the long run every grain will be drawn as often as any other, that is to say postulates that the ratio of the numbers of times in which any two are drawn will indefinitely approximate to unity. But no such postulate is made; for if, on the one hand, we are to have no other experience of the wheat than from such drawings, it is the ratio that presents itself in those drawings and not the ratio which belongs to the wheat in its latent existence that we are endeavoring to determine; while if, on the other hand, there is some other mode by which the wheat is to come under our knowledge, equivalent to another kind of sampling, so that after all our care in stirring up the wheat, some experiential grains will present themselves in the first sampling operation more often than others in the long run, this very singular fact will be sure to get discovered by the inductive method, which must avail itself of every sort of experience; and our inference, which was only provisional, corrects itself at last. Again, it has been said, that induction postulates that under like circumstances like events will happen, and that this postulate is at bottom the same as the principle of universal causation. But this is a blunder, or *bévue*, due to thinking exclusively of inductions where the concluded ratio is either 1 or 0. If any such proposition were postulated, it would be that under like circumstances (the circumstances of drawing the different samples) different events occur in the same proportions in all the different sets,—a proposition which is false and even absurd. But in truth no such thing is postulated, the experiential character of the inference reducing the condition of validity to this, that if a certain result does not occur, the opposite result will be manifested, a condition assured by the provisionality of the inference. But it may be asked whether it is not conceivable that every instance of a certain class destined to be ever employed as a datum of induction should have one character, while every instance destined not to be so employed should have the opposite

character. The answer is that in that case, the instances excluded from being subjects of reasoning would not be experienced in the full sense of the word, but would be among these *latent* individuals of which our conclusion does not pretend to speak.

To this account of the rationale of induction I know of but one objection worth mention: it is that I thus fail to deduce the full degree of force which this mode of inference in fact possesses; that according to my view, no matter how thorough and elaborate the stirring and mixing process had been, the examination of a single handful of grain would not give me any assurance, sufficient to risk money upon, that the next handful would not greatly modify the concluded value of the ratio under inquiry, while, in fact, the assurance would be very high that this ratio was not greatly in error. If the true ratio of grains of quality *A* were 0·80 and the handful contained a thousand grains, nine such handfuls out of every ten would contain from 780 to 820 grains of quality *A*. The answer to this is that the calculation given is correct when we know that the units of this handful and the quality inquired into have the normal independence of one another, if for instance the stirring has been complete and the character sampled for has been settled upon in advance of the examination of the sample. But in so far as these conditions are not known to be complied with, the above figures cease to be applicable. Random sampling and predesignation of the character sampled for should always be striven after in inductive reasoning, but when they cannot be attained, so long as it is conducted honestly, the inference retains some value. When we cannot ascertain how the sampling has been done or the sample-character selected, induction still has the essential validity which my present account of it shows it to have.

I do not think a man who combines a willingness to be convinced with a power of appreciating an argument upon a difficult subject can resist the reasons which have been given to show that the principle of universal necessity cannot be defended as being a postulate of reasoning. But then the question immediately arises whether it is not proved to be true, or at least rendered highly probable, by observation of nature.

Still, this question ought not long to arrest a person accustomed to reflect upon the force of scientific reasoning. For the essence of the necessitarian position is that certain continuous quantities have certain exact values. Now, how can observation determine the value of such a quantity with a probable error absolutely *nil?* To one who is behind the scenes, and knows that the most refined comparisons of masses, lengths, and angles, far surpassing in precision all other measurements, yet fall behind the accuracy of bank-accounts, and that the ordinary determinations of physical constants, such as appear from month to month in the journals, are about on a par with an upholsterer's measurements of carpets and curtains, the idea of mathematical exactitude being demonstrated in the laboratory will appear simply ridiculous. There is a recognised method of estimating the probable magnitudes of errors in physics,—the method of least squares. It is universally admitted that this method makes the errors smaller than they really are; yet even according to that theory an error indefinitely small is indefinitely improbable; so that any statement to the effect that a certain continuous quantity has a certain exact value, if well-founded at all, must be founded on something other than observation.

Still, I am obliged to admit that this rule is subject to a certain qualification. Namely, it only applies to continuous* quantity. Now, certain kinds of continuous quantity are discontinuous at one or at two limits, and for such limits the rule must be modified. Thus, the length of a line cannot be less than zero. Suppose, then, the question arises how long a line a certain person had drawn from a marked point on a piece of paper. If no line at all can be seen, the observed length is zero; and the only conclusion this observation warrants is that the length of the line is less than the smallest length visible with the optical power employed. But indirect observations,—for example, that the person supposed to have drawn the line was never within fifty feet of the paper,—may make it probable that no line at all was made, so that the concluded length will be

* *Continuous* is not exactly the right word, but I let it go to avoid a long and irrelevant discussion.

strictly zero. In like manner, experience no doubt would warrant the conclusion that there is absolutely *no* indigo in a given ear of wheat, and absolutely *no* attar in a given lichen. But such inferences can only be rendered valid by positive experiential evidence, direct or remote, and cannot rest upon a mere inability to detect the quantity in question. We have reason to think there is no indigo in the wheat, because we have remarked that wherever indigo is produced it is produced in considerable quantities, to mention only one argument. We have reason to think there is no attar in the lichen, because essential oils seem to be in general peculiar to single species. If the question had been whether there was iron in the wheat or the lichen, though chemical analysis should fail to detect its presence, we should think some of it probably was there, since iron is almost everywhere. Without any such information, one way or the other, we could only abstain from any opinion as to the presence of the substance in question. It cannot, I conceive, be maintained that we are in any *better* position than this in regard to the presence of the element of chance or spontaneous departures from law in nature.

Those observations which are generally adduced in favor of mechanical causation simply prove that there is an element of regularity in nature, and have no bearing whatever upon the question of whether such regularity is exact and universal, or not. Nay, in regard to this *exactitude*, all observation is directly *opposed* to it; and the most that can be said is that a good deal of this observation can be explained away. Try to verify any law of nature, and you will find that the more precise your observations, the more certain they will be to show irregular departures from the law. We are accustomed to ascribe these, and I do not say wrongly, to errors of observation; yet we cannot usually account for such errors in any antecedently probable way. Trace their causes back far enough, and you will be forced to admit they are always due to arbitrary determination, or chance.

But it may be asked whether if there were an element of real chance in the universe it must not occasionally be productive of signal effects such as could not pass unobserved. In answer to this question, without stopping to point out that there is an abundance

of great events which one might be tempted to suppose were of that nature, it will be simplest to remark that physicists hold that the particles of gases are moving about irregularly, substantially as if by real chance, and that by the principles of probabilities there must occasionally happen to be concentrations of heat in the gases contrary to the second law of thermodynamics, and these concentrations, occurring in explosive mixtures, must sometimes have tremendous effects. Here, then, is in substance the very situation supposed; yet no phenomena ever have resulted which we are forced to attribute to such chance concentration of heat, or which anybody, wise or foolish, has ever dreamed of accounting for in that manner.

In view of all these considerations, I do not believe that anybody, not in a state of casehardened ignorance respecting the logic of science, can maintain that the precise and universal conformity of facts to law is clearly proved, or even rendered particularly probable, by any observations hitherto made. In this way, the determined advocate of exact regularity will soon find himself driven to *a priori* reasons to support his thesis. These received such a soc-dolager from Stuart Mill in his Examination of Hamilton, that holding to them now seems to me to denote a high degree of imperviousness to reason; so that I shall pass them by with little notice.

To say that we cannot help believing a given proposition is no argument, but it is a conclusive fact if it be true; and with the substitution of "I" for "we," it is true in the mouths of several classes of minds, the blindly passionate, the unreflecting and ignorant, and the person who has overwhelming evidence before his eyes. But that which has been inconceivable to-day has often turned out indisputable on the morrow. Inability to conceive is only a stage through which every man must pass in regard to a number of beliefs,—unless endowed with extraordinary obstinacy and obtuseness. His understanding is enslaved to some blind compulsion which a vigorous mind is pretty sure soon to cast off.

Some seek to back up the *a priori* position with empirical arguments. They say that the exact regularity of the world is a natural belief, and that natural beliefs have generally been confirmed by experience. There is some reason in this. Natural beliefs, how-

ever, if they generally have a foundation of truth, also require correction and purification from natural illusions. The principles of mechanics are undoubtedly natural beliefs; but, for all that, the early formulations of them were exceedingly erroneous. The general approximation to truth in natural beliefs is, in fact, a case of the general adaptation of genetic products to recognisable utilities or ends. Now, the adaptations of nature, beautiful and often marvellous as they verily are, are never found to be quite perfect; so that the argument is quite *against* the absolute exactitude of any natural belief, including that of the principle of causation.

Another argument, or convenient commonplace, is that absolute chance is *inconceivable*. This word has eight current significations. The Century Dictionary enumerates six. Those who talk like this will hardly be persuaded to say in what sense they mean that chance is inconceivable. Should they do so, it would easily be shown either that they have no sufficient reason for the statement or that the inconceivability is of a kind which does not prove that chance is non-existent.

Another *a priori* argument is that chance is unintelligible; that is to say, while it may perhaps be conceivable, it does not disclose to the eye of reason the how or why of things; and since a hypothesis can only be justified so far as it renders some phenomenon intelligible, we never can have any right to suppose absolute chance to enter into the production of anything in nature. This argument may be considered in connection with two others. Namely, instead of going so far as to say that the supposition of chance can *never* properly be used to explain any observed fact, it may be alleged merely that no facts are known which such a supposition could in any way help in explaining. Or again, the allegation being still further weakened, it may be said that since departures from law are not unmistakably observed, chance is not a *vera causa*, and ought not unnecessarily to be introduced into a hypothesis.

These are no mean arguments, and require us to examine the matter a little more closely. Come, my superior opponent, let me learn from your wisdom. It seems to me that every throw of sixes with a pair of dice is a manifest instance of chance.

"While you would hold a throw of deuce-ace to be brought about by necessity?" [The opponent's supposed remarks are placed in quotation marks.]

Clearly one throw is as much chance as another.

"Do you think throws of dice are of a different nature from other events?"

I see that I must say that *all* the diversity and specificalness of events is attributable to chance.

"Would you, then, deny that there is any regularity in the world?"

That is clearly undeniable. I must acknowledge there is an approximate regularity, and that every event is influenced by it. But the diversification, specificalness, and irregularity of things I suppose is chance. A throw of sixes appears to me a case in which this element is particularly obtrusive.

"If you reflect more deeply, you will come to see that *chance* is only a name for a cause that is unknown to us."

Do you mean that we have no idea whatever what kind of causes could bring about a throw of sixes?

"On the contrary, each die moves under the influence of precise mechanical laws."

But it appears to me that it is not these *laws* which made the die turn up sixes; for these laws act just the same when other throws come up. The chance lies in the diversity of throws; and this diversity cannot be due to laws which are immutable.

"The diversity is due to the diverse circumstances under which the laws act. The dice lie differently in the box, and the motion given to the box is different. These are the unknown causes which produce the throws, and to which we give the name of chance; not the mechanical law which regulates the operation of these causes. You see you are already beginning to think more clearly about this subject."

Does the operation of mechanical law not increase the diversity?

"Properly not. You must know that the instantaneous state of a system of particles is defined by six times as many numbers as there are particles, three for the co-ordinates of each particle's posi-

tion, and three more for the components of its velocity. This number of numbers, which expresses the amount of diversity in the system, remains the same at all times. There may be, to be sure, some kind of relation between the co-ordinates and component velocities of the different particles, by means of which the state of the system might be expressed by a smaller number of numbers. But, if this is the case, a precisely corresponding relationship must exist between the co-ordinates and component velocities at any other time, though it may doubtless be a relation less obvious to us. Thus, the intrinsic complexity of the system is the same at all times."

Very well, my obliging opponent, we have now reached an issue. You think all the arbitrary specifications of the universe were introduced in one dose, in the beginning, if there was a beginning, and that the variety and complication of nature has always been just as much as it is now. But I, for my part, think that the diversification, the specification, has been continually taking place. Should you condescend to ask me why I so think, I should give my reasons as follows :

1) Question any science which deals with the course of time. Consider the life of an individual animal or plant, or of a mind. Glance at the history of states, of institutions, of language, of ideas. Examine the successions of forms shown by paleontology, the history of the globe as set forth in geology, of what the astronomer is able to make out concerning the changes of stellar systems. Everywhere the main fact is growth and increasing complexity. Death and corruption are mere accidents or secondary phenomena. Among some of the lower organisms, it is a moot point with biologists whether there be anything which ought to be called death. Races, at any rate, do not die out except under unfavorable circumstances. From these broad and ubiquitous facts we may fairly infer, by the most unexceptionable logic, that there is probably in nature some agency by which the complexity and diversity of things can be increased ; and that consequently the rule of mechanical necessity meets in some way with interference.

2) By thus admitting pure spontaneity or life as a character of the universe, acting always and everywhere though restrained

within narrow bounds by law, producing infinitesimal departures from law continually, and great ones with infinite infrequency, I account for all the variety and diversity of the universe, in the only sense in which the really *sui generis* and new can be said to be accounted for. The ordinary view has to admit the inexhaustible mulitudinous variety of the world, has to admit that its mechanical law cannot account for this in the least, that variety can spring only from spontaneity, and yet denies without any evidence or reason the existence of this spontaneity, or else shoves it back to the beginning of time and supposes it dead ever since. The superior logic of my view appears to me not easily controverted.

3) When I ask the necessitarian how he would explain the diversity and irregularity of the universe, he replies to me out of the treasury of his wisdom that irregularity is something which from the nature of things we must not seek to explain. Abashed at this, I seek to cover my confusion by asking how he would explain the uniformity and regularity of the universe, whereupon he tells me that the laws of nature are immutable and ultimate facts, and no account is to be given of them. But my hypothesis of spontaneity does explain irregularity, in a certain sense ; that is, it explains the general fact of irregularity, though not, of course, what each lawless event is to be. At the same time, by thus loosening the bond of necessity, it gives room for the influence of another kind of causation, such as seems to be operative in the mind in the formation of associations, and enables us to understand how the uniformity of nature could have been brought about. That single events should be hard and unintelligible, logic will permit without difficulty : we do not expect to make the shock of a personally experienced earthquake appear natural and reasonable by any amount of cogitation. But logic does expect things *general* to be understandable. To say that there is a universal law, and that it is a hard, ultimate, unintelligible fact, the why and wherefore of which can never be inquired into, at this a sound logic will revolt ; and will pass over at once to a method of philosophising which does not thus barricade the road of discovery.

4) Necessitarianism cannot logically stop short of making the

whole action of the mind a part of the physical universe. Our notion that we decide what we are going to do, if as the necessitarian says, it has been calculable since the earliest times, is reduced to illusion. Indeed, consciousness in general thus becomes a mere illusory aspect of a material system. What we call red, green, and violet are in reality only different rates of vibration. The sole reality is the distribution of qualities of matter in space and time. Brain-matter is protoplasm in a certain degree and kind of complication,—a certain arrangement of mechanical particles. Its feeling is but an inward aspect, a phantom. For, from the positions and velocities of the particles at any one instant, and the knowledge of the immutable forces, the positions at all other times are calculable; so that the universe of space, time, and matter is a rounded system uninterfered with from elsewhere. But from the state of feeling at any instant, there is no reason to suppose the states of feeling at all other instants are thus exactly calculable; so that feeling is, as I said, a mere fragmentary and illusive aspect of the universe. This is the way, then, that necessitarianism has to make up its accounts. It enters consciousness under the head of sundries, as a forgotten trifle; its scheme of the universe would be more satisfactory if this little fact could be dropped out of sight. On the other hand, by supposing the rigid exactitude of causation to yield, I care not how little, —be it but by a strictly infinitesimal amount,—we gain room to insert mind into our scheme, and to put it into the place where it is needed, into the position which, as the sole self-intelligible thing, it is entitled to occupy, that of the fountain of existence; and in so doing we resolve the problem of the connection of soul and body.

5) But I must leave undeveloped the chief of my reasons, and can only adumbrate it. The hypothesis of chance-spotaneity is one whose inevitable consequences are capable of being traced out with mathematical precision into considerable detail. Much of this I have done and find the consequences to agree with observed facts to an extent which seems to me remarkable. But the matter and methods of reasoning are novel, and I have no right to promise that other mathematicians shall find my deductions as satisfactory as I myself do, so that the strongest reason for my belief must for the

present remain a private reason of my own, and cannot influence others. I mention it to explain my own position; and partly to indicate to future mathematical speculators a veritable goldmine, should time and circumstances and the abridger of all joys prevent my opening it to the world.

If now I, in my turn, inquire of the necessitarian why he prefers to suppose that all specification goes back to the beginning of things, he will answer me with one of those last three arguments which I left unanswered.

First, he may say that chance is a thing absolutely unintelligible, and therefore that we never can be entitled to make such a supposition. But does not this objection smack of naïve impudence? It is not mine, it is his own conception of the universe which leads abruptly up to hard, ultimate, inexplicable, immutable law, on the one hand, and to inexplicable specification and diversification of circumstances on the other. My view, on the contrary, hypothetises nothing at all, unless it be hypothesis to say that all specification came about in some sense, and is not to be accepted as unaccountable. To undertake to account for anything by saying boldly that it is due to chance would, indeed, be futile. But this I do not do. I make use of chance chiefly to make room for a principle of generalisation, or tendency to form habits, which I hold has produced all regularities. The mechanical philosopher leaves the whole specification of the world utterly unaccounted for, which is pretty nearly as bad as to boldly attribute it to chance. I attribute it altogether to chance, it is true, but to chance in the form of a spontaneity which is to some degree regular. It seems to me clear at any rate that one of these two positions must be taken, or else specification must be supposed due to a spontaneity which develops itself in a certain and not in a chance way, by an objective logic like that of Hegel. This last way I leave as an open possibility, for the present; for it is as much opposed to the necessitarian scheme of existence as my own theory is.

Secondly the necessitarian may say there are, at any rate, no observed phenomena which the hypothesis of chance could aid in explaining. In reply, I point first to the phenomenon of growth and

developing complexity, which appears to be universal, and which though it may possibly be an affair of mechanism perhaps, certainly presents all the appearance of increasing diversification. Then, there is variety itself, beyond comparison the most obtrusive character of the universe: no mechanism can account for this. Then, there is the very fact the necessitarian most insists upon, the regularity of the universe which for him serves only to block the road of inquiry. Then, there are the regular relationships between the laws of nature,—similarities and comparative characters, which appeal to our intelligence as its cousins, and call upon us for a reason. Finally, there is consciousness, feeling, a patent fact enough, but a very inconvenient one to the mechanical philosopher.

Thirdly, the necessitarian may say that chance is not a *vera causa*, that we cannot know positively there is any such element in the universe. But the doctrine of the *vera causa* has nothing to do with elementary conceptions. Pushed to that extreme, it at once cuts off belief in the existence of a material universe; and without that necessitarianism could hardly maintain its ground. Besides, variety is a fact which must be admitted; and the theory of chance merely consists in supposing this diversification does not antedate all time. Moreover, the avoidance of hypotheses involving causes nowhere positively known to act—is only a recommendation of logic, not a positive command. It cannot be formulated in any precise terms without at once betraying its untenable character,—I mean as rigid rule, for as a recommendation it is wholesome enough.

I believe I have thus subjected to fair examination all the important reasons for adhering to the theory of universal necessity, and have shown their nullity. I earnestly beg that whoever may detect any flaw in my reasoning will point it out to me, either privately or publicly; for if I am wrong, it much concerns me to be set right speedily. If my argument remains unrefuted, it will be time, I think, to doubt the absolute truth of the principle of universal law; and when once such a doubt has obtained a living root in any man's mind, my cause with him, I am persuaded, is gained.

C. S. Peirce.

PSYCHICAL MONISM.

IN modern thought, ever since Descartes introduced into the conception of all-comprising nature that perplexing distinction between thinking and extended substance, the problem of reconciling so radical a dualism has formed the main task of those who have busied themselves with philosophical interpretation.

In the light of the Cartesian system there seemed to exist two entirely disparate, independent worlds; the one in individual consciousness, the other outside of it; the one made of mental, the other of material stuff.

How to conceive these two antithetical worlds as interdependent constituents of one and the same unitary nature is, after many discarded attempts, still the principal endeavor of systematic thinking.

Every student of philosophy knows how Descartes himself ascribed the evident concordance and intercommunication of the two worlds to the miraculous decree and intervention of the Deity; how Spinoza sought to overcome the distracting dilemma by proving that the two substances are but attributes of one single absolute substance; how Leibnitz made both realms, that of inwardness and that of outwardness, form a consistent universe and keep consonant time by means of a divinely pre-established harmony; and how numbers of less illustrious devices likewise failed to gain general acceptance.

A more important part in the development of modern thought was played by those other attempts, which strove to reach a monistic interpretation by showing that nature in all its manifestations is constituted, either solely by mind and its original endowments; or,

on the contrary, solely by matter and its original endowments. Thinkers versed in physical science felt inclined to look upon the material world as the matrix of all natural occurrences; while those versed in psychical science were apt to conceive the mental world as containing within itself all there is of nature.

The physical hypothesis has proved its eminent efficiency by leading to a vastly more correct and faithful knowledge of the perceptible universe than had ever been previously attained.

Still, from the psychical standpoint it became nevertheless evident beyond contention, that all so-called qualities of matter, all that in any way enters into our perception of it, is composed of nothing but mental constituents. And this means simply, that, whatever we are actually conscious of, must of necessity form part of our own consciousness, and not of anything outside of it.

As to the truth of this fundamental psychological conception there is no longer any dispute among philosophers. But there remains to be solved the all-important question, whether or not there exists outside this consciousness of ours, either beyond its peripheral, perceptual range, or beyond its central, conceptual sphere, another world which it merely symbolically reveals. And in case such another extra-conscious world is found actually to exist, how it comes to constitute, together with the world of consciousness, that unitary system of being of which we mentally and bodily seem to form part.

Professor Dewey in a series of articles in *Mind* (Nos. 41, 42, 49, 57) and in one recently published in this journal (Vol. II, No. 1) advocates—more profoundly and consistently than has been done before by any Neo-Kantian or Neo-Hegelian—the view, that consciousness itself intuites all phenomena of nature by force of its own intrinsic activity, imparting to them their significance as knowledge by discriminating their specific position and value within its own all-comprising organic totality of being. He believes thus in no other world than that of self-consciousness; asserting that neither its perceptual nor its conceptual content are significative of any reality beyond.

The editor, though an ardent defender of cosmic Monism, is

by no means a convert to such purely psychical monism. He maintains, on the contrary, in the same issue of *The Monist* (p. 85), that, "The mental picture of a tree becomes a symbol for a special object outside of us, and is projected to the place where experience has taught us to expect that object." Consequently, the mental picture refers as knowledge to something outside of us, to something not forming part of our consciousness.

The present writer believes likewise, that the perceptual tree is merely a mental symbol signalising an extra-mental, sense-stimulating existent; and that the value of this symbol as knowledge consists altogether in its implication of the existence of an entity subsisting outside our own being and its consciousness, and having power to affect our sensibility in definite more or less recognised ways.

The editor and the present writer assert then, that the content of perceptual consciousness forms merely a symbolical representation of a corresponding reality subsisting outside consciousness; while Professor Dewey acknowledges as really existent only self-consciousness, and nothing outside of it, either peripherically stimulating the senses, or centrally imparting universality to individual intelligence.

The former view frankly admits duality in nature, so far as conscious and extra-conscious existence are concerned. And in order to overcome this dualism of *ordo idearum* and *ordo rerum*—essentially the same dualism as bequeathed to us by Descartes—it has to show how the world within consciousness with its "mental picture," and the world "outside of us" containing the existent symbolically represented; how these totally disparate worlds come to constitute a unitary nature, whose divers modes of existence are throughout interdependently connected.

It is clear that the reality symbolised by the "mental picture"—if any such reality actually exists—can be known to us solely as thus mentally symbolised, and not known to us in any way as it subsists extra-mentally "outside of us," as it subsists in itself when not thus symbolically represented by our casual and intermittent perception of it.

The mental picture being a mere representative symbol must needs differ *toto genere* from the non-mental existent symbolised thereby. We know only what as mental representation is forming part of our consciousness. We cannot possibly know anything we are not conscious of. The entity "outside of us," the "thing in itself"—if it at all exists—is therefore as such of necessity unknown to us. This confession of ontological ignorance is unavoidably involved in the acceptance of a symbolised reality "outside of us."

The complex and prodigious difficulties in the way of a monistic interpretation, when we start with the dualistic presupposition of a conscious and an extra-conscious world, are all effectively circumvented, as soon as with Professor Dewey we deny altogether the existence of a world of "things-in-themselves" or sense-affecting existents, and roundly assert that consciousness as such constitutes, comprises, and has direct knowledge of ultimate reality; that it is in fact itself the absolute all-sufficient and all-efficient entity.

To understand the philosophical strength and influence of a position so strangely at variance with that of current common sense, which holds as self-evident the existence of body as well as mind, we have somewhat to probe its deep-laid foundations in the history of modern thought.

It was rendered plausible through Descartes's, Locke's, Berkeley's, and Hume's philosophical argumentation, that what we are consciously aware of, what is actually present to us as perception or "idea," and therewith as the world at large, is altogether made up of a more or less complex combination of our own actual and remembered sensations.

The conscious content itself was thus necessarily held to constitute the exclusive object of philosophical research. And by starting with sensations as its primordial elements, and taking all "ideas," or facts of memory, to be but faint reproductions of such elements, it became the task of investigators "of the human mind" to analyse the given content of consciousness into these its assumed elements, and to discover the "laws" or general ways of their combination.

Proud of its purely experiential method, concerned about nothing but what is actually found present in consciousness, this mode

of philosophising disclaimed, in consequence, all knowledge of any "power" giving rise from without to sensorial "impressions" and their order of conscious emergence. And it ignored likewise the existence of any "power" combining and systematising them from within; and, moreover, of any entity for whom the sensorially constituted experience had intelligent significance.

Such nominalistic, sensorial idealism has until lately reigned supreme in English philosophy. Previous to the new departure introduced by it philosophical interpretation had always followed the method of conceptual evolution, carried on according to the rules of formal or deductive logic. It took some widely inclusive, ready-made concepts as its starting points or major premises, and extracted therefrom all knowledge that seemed to be implicitly contained in them.

Even Kant in his younger days had no idea that valid knowledge or truth could possibly be attained in any other way than by logically deducing it from ready-made premises. At a later period he learned from Hume to distinguish between what he termed analytical and synthetical propositions, and what had been called by the former thinker connection between vivid impressions or matter of fact on the one side, and connection between their faint copies or the so-called ideas on the other side.

The discovery on the part of Kant, that our knowledge of the actual connection of matters of facts has in every instance to be learned from direct experience and cannot be ratiocinatively deduced from ready-made general notions, was a complete revelation to him. It changed his entire way of thinking, and became the starting-point of his system of critical or transcendental philosophy. He saw clearly, that, if all instructive cognition is gained, and has always been gained, solely by means of actual experience, if it has been synthetically built up bit by bit as directly given to us, without our being able to construct a valid system of knowledge transcending in any way actual experience; that reason then as a knowledge-constituting faculty is impotent, and that metaphysics, as the science of a realm of intelligible existence, must be ever more rejected as a pure illusion.

Kant's thought, like that of most of our own rationalistic thinkers, was however predominantly swayed by the belief in an intelligible world, the veritable home of man's spiritual being, where it eternally abideth in close communion with a supreme creative intelligence. After a brief attack of Humian scepticism, the theologically trained, though rationally wide-awake and profound thinker, set out to examine the faculties of reason with a view to discover a philosophically legitimate ingress into that cherished realm of intelligible subsistence. Hitherto reason had been effectively used in philosophy only as an analytic instrument. Real knowledge being, however, as proved by Hume, a matter of synthesis, it would evidently be making proper way toward a rationally conceived intelligible world, if it could be proved that reason is itself in possession of synthetical powers.

After many years of profound meditation in this direction, Kant gave its results to the philosophical world. He had become convinced that mathematical truth, instead of being analytically derived as hitherto believed, is on the contrary built up synthetically by intelligence itself, and this without the aid of externally imparted experience; that intelligence is therefore efficient to form synthetical propositions *a priori*. It followed, as a matter of course, that time and space in which mathematical figurations take shape, are not conditions of existence outside of us, but original forms of our own perceptive faculty, and that intelligence by dint of its synthetical powers constructs mathematical figurations within these perceptual forms. And finally the conclusion was reached that time and space, the empty forms of perception, being themselves wholly deficient of any kind of activity, it must be intelligence alone which possesses synthetical efficiency, which exercises in fact whatever activity is operative in the conscious world.

But though Kant enthroned intelligence as the creator of pure mathematics, and endowed it with the exclusive gift of synthetical efficiency, he did not see his way to constitute it also the creator of the sense-given material that comes experientially to fill the empty and passive forms of perception. Against all denunciations of his system as purely idealistic, he insisted that there exists outside our

being and its consciousness a world of things-in-themselves, having power to affect our sensibility, so that time and space, its receptive forms, become filled with experiential, though wholly unsynthetised material.

Reluctantly, though in faithful adherence to the unbiassed results of his investigation, he was at last led to declare that intelligence or reason as an instrument of knowledge—called by him theoretical reason in contradistinction to practical reason, conceived as the leading principle of moral conduct;—that such theoretical reason has power only over sensorially given material, and is incapable of attaining knowledge of the intelligible sphere.

Still Kant regarded his so-called categories or synthetical functions of reason as modes of activity, belonging not only to individual reason, but to reason in general. And on the strength of this realistic generalisation he attributed to them the power of imparting necessity to synthetical propositions, such propositions—otherwise merely subjective or empirical—being rendered thereby objective or universally valid. He showed, moreover, that the relation of every kind of knowledge to a common centre of all-inclusive awareness,—that this "synthetic unity of apperception" as he called it,—presupposes an intelligible ego, whose veritable nature becomes however nowise manifest within our time-and-space-conditioned experience. And he taught that an all-comprehending intelligible being had to be hypostatised in order to complete the totality of rational knowledge.

Thus, instead of giving us a monistic philosophy, Kant's theoretical speculations disclosed, on the contrary, a tripartite world. At the centre the non-manifest intelligible ego in communion with a supernatural sphere, and conceived as the veritable bearer of the synthetical reason. In the median and only known region the synthetical reason itself, constructing and cognising nature, by synthetically elaborating the chaotic manifold in time and space. And at the periphery, beyond our own being and its perception, an unknowable realm of things-in-themselves affecting our sensibility.

So complex an appearance did existence assume under Kant's critical inspection. Contemplative man, however, never ceases to

hanker after a monistic world-conception. Though individualised, he feels himself one with universal being, and strenuously strives to understand how those bonds of union are established, and what part he in verity is playing in this stupendous drama of being and becoming.

To most philosophers, before Kant, knowledge seemed to be given to us ready-made, first conceptually as innate ideas or universal notions; and then perceptually as the finished image of an outside world.

Kant has exerted, and still exerts, a controlling influence over thinkers by having systematically demonstrated, that not only knowledge, but nature itself as we know it, is constructed by powers inherent in our own being. He taught that we ourselves, by force of our combining and ordering intellectual organisation, fashion out of meaningless sense-material the wondrous world we know. And, moreover, that by force of our intelligible being we have power to bend the otherwise rigorously mechanical course of nature in compliance with moral injunctions.

No wonder that so inspiriting a philosophy electrified to new vigor and valiant self-reliance the dogmatically slumbering life of German thought. And it was Fichte, above all other followers of Kant, who by his fervent exposition kindled in crowds of hearers the vivifying spark of this "new philosophy" of all-efficient intelligence.

Fichte is the real father of such psychical monism as has recently found so proficient an expounder in Professor Dewey. Fichte understood, what Kant failed to see, that the "dynamical idealism" of nature-constituting reason involves, not merely the *elaboration* of sense-given material, but the *out and out production* within consciousness of the entire world of perception. For perception undeniably takes place within our own being, and must therefore be, as regards matter as well as form, the outcome of powers inherent in ourselves. Between a consistent dream and the apperception of reality the difference lies merely in our feeling, in the latter instance, compelled in a peculiar manner to perceive what we perceive. But this feeling of compulsion is likewise a constituent of our own conscious-

ness, and, moreover, under the influence of hallucinations even this test of reality fails us.

According to Fichte's matured thought, our being consists altogether in intellectual activity, an activity rendering explicit by means of self-consciousness what it already implicitly contains. And it is universal being that becomes thus self-conscious in us. Infinite reason, constituting a system of ideas, a spiritual organisation, is the fount and origin of all existence, its own self-revelation becoming manifest in finite beings.

Thus, by force of logical consistency, was eliminated from Kantian transcendentalism the world of things-in-themselves as superfluous to all-constituting intelligence. And the unification of individual self-consciousness with universal intelligence was established by considering individual self-consciousness as partaking in the self-revealing activity of universal intelligence.

Hegel elaborated systematically the psychical or idealistic monism thus foreshadowed in Fichte's later writings. Philosophical interpretation turns principally upon the source and import of consciousness. And from the recognition of the fact, that all constituents of perception form part of this consciousness of ours, it obviously follows that objects, and indeed the entire objective world realised in perception and solely as perception; that the realisation of this entire world of perceptual objects is in verity realisation of a world contained in our own being or subject. Subject and object are therefore, from this point of view, at bottom identical; the objective world—our human bodies included—being a self-revelation of our all-comprehending subject. Mind as well as matter, that which we call mental and that which we call material, are thus mere abstract terms denoting the subjective and objective sides of one and the same reality.

This reality transcendental idealism declares to be "intellectual activity." It is intellectual activity which—from its point of view—is revealing itself in the conscious content, becoming thus self-conscious. This process of recognition of one's self as subject-object, as the unitary essence and completion of both, is what Hegel calls the "Idea." And with him theoretical or logical self-recogni-

tion and practical or ethical self-realisation coincide as "Absolute Idea." For to think absolute truth and to will its realisation are but two sides of one and the same activity. Thought, intelligence, reason, knowing itself as in every sense veritable being is thus the absolute One and All.

Such out and out psychical monism is the legitimate outcome of a conception which takes the content of consciousness to be ultimate reality, signifying nothing beyond itself; and which then constitutes a spiritually conceived entity, called thought, intelligence, or reason, as the originator and bearer of such consciousness.

After a period of glorious triumph the Hegelian philosophy of self-evolving intelligence became a general laughing-stock at home and abroad. This ignominious fate overtook it, first in consequence of its fawning prostitution by the master himself to the reactionary service of Church and State; and then also in consequence of the ridiculous "pyrotechnical" abuse of its dialectical method by the "Young-Hegelians."

However, by "going back to Kant," the teachings of transcendental idealism have in our time once more gained the ascendency, and have succeeded not only in conquering materialism, but also in invading and almost supplanting English experientialism.

In Germany, after a season of complete estrangement between science and philosophy, a re-approachment was effected by the Neo-Kantian movement. It originated principally in the recognition on the part of science, that sense-perception is above all a psychical and not a purely physiological process, a mental not a material fact; that therefore the effort to arrive at a correct "theory of knowledge" is by no means a vain endeavor, and that psychics as well as physics deserves a place in the hierarchy of sciences.

In England and America the Neo-Kantian movement owed, on the other hand, its success, above all, to such theistic rationalism as found popular expression in "Robert Elsmere." In Professor Caird's words it is said to afford a means for the "vindication of the religious consciousness." And this it accomplishes "by an objective or absolute synthesis," which establishes "the indivisible unity

of the intelligence and the intelligible world," "the unity of man as spiritual with an absolute spirit."

Dr. Hutchison Sterling's "Secret of Hegel" gave the first effective impulse to this transcendental mode of thinking among university men of a speculative turn. The late Thomas Hill Green of Oxford and Prof. Edward Caird of Glasgow became its foremost exponents, and made numerous converts. The former by elaborately disclosing, by force of Kant's principle of synthetical reason, the insufficiency of the sensorial experientialism generally accepted in England since Locke's "Essay Concerning Human Understanding." The latter by consistently developing the idealistic and transcendental implications of this same principle of synthetical reason.

As repeatedly noticed, and never to be lost sight of, transcendental idealism derives its convincing force from the undeniable truth, that whatever we are directly aware of forms part of our own consciousness. This involves the indivisible unity of such fact as we are directly conscious of and the faculty through which we are conscious of it. This unity of the realising self and the realised world, of object and subject as content of consciousness; or rather the unity of the objective and subjective factors of it, this subject-object oneness of conscious states and occurrences is an irrefutable truth, from which one has to start, whatever direction one may take. You assert, then, that that which exists thus interblended as consciousness is itself ultimate reality, and you will encounter but little difficulty in deducing therefrom a pretty plausible psychical monism. For the power through which and as which this ultimate reality exists is then immanent in us individually. And when this power is conceived as intelligence or spirit, and the world at large as existing solely as content of this spirit's consciousness, or indeed as such consciousness itself, it is clear that our own self-and-world-awareness must be—according to this view—identical in essence with the spiritual power which is ultimate and universal Reality.

In self-consciousness, when regarded as a totality of all actual and potential awareness, our feelings as well as the perceptual objects composed of them constitute an organically completed order. They all stand in definite and interdependent relations to our unitary

being. This all-comprising being has time and space as modes of gradual self-realisation, but is not—according to transcendentalism—itself in time and space. And this is undeniably true, so far at least as the being that combines all transient events of experience into a unitary system of permanent knowledge cannot possibly itself form part of the ephhemeral flux of conscious states experienced by it.

Still the multifold individuations of the ultimate reality into separate personal self-consciousnesses and deciduous bodily organisms forms the great, if not insuperable, obstacle in the way of psychical monism. If, on the one hand, we take with Green and Professor Caird individual self-consciousness as a "reproduction," and not as a mere phase of universal consciousness; and on the other hand admit a natural and gradual development "of man as an animal organism," instead of proving such natural development to be a misconception of our time and space bound recognition, we are far from having as yet succeeded in establishing a consistent psychical monism on Kantian lines. His tripartite world remains ununified.

To achieve its unification is, however, after a profound study and appreciation of the difficulties to be encountered, the arduous task Professor Dewey has courageously undertaken. To accomplish his purpose he has to show how individual consciousness proves itself to be ultimate reality, and as such identical with universal consciousness; how man, appearing among other perceptible objects in multifold individuated specimens as a gradually developed organism, is nevertheless in reality a complete, all-comprising entity, not essentially subject to time, space, or numerical limitations. And he has to make clear how all conscious content, including the external world as well as the feeling and thinking subject, has no other existence and significance than in and for consciousness.

Professor Dewey maintains that individual consciousness is in reality one with universal consciousness, because it comprehends within itself subject-and-object-consciousness; the abiding consciousness of oneself as an ever-changing individual, and that of the world at large, though figured in transient groups of sensations. This being so, that which is thus the bearer and realiser of all being and becoming in nature, cannot itself form part of this becoming,

but must—according to Professor Dewey's view—be eternal and absolute. The all-comprehending consciousness—and there is no existence outside of it—is thus identical with universal intelligence, identical with that eternally active intelligence which is everlastingly creating the organic synthesis of all being and becoming.

"Consciousness the ultimate fact reveals itself as reason." Sensations have no self-existence, no meaning in themselves. They exist only as intellectually apprehended and for intelligence alone. It is from intellectual interpretation that they receive their entire significance. On solicitation of sensations the ideal content of universal intelligence becomes partially and interruptedly revealed to individual consciousness. The sole office of sensations is to give in us occasion to this self-realisation of the eternal content of intelligence.

Professor Dewey establishes his psychical monism by discovering self-consciousness as the Absolute, the One and All. Individual idealism or so-called solipsism, such as expounded by Fichte in his earlier writings from the side of intellect, and in the writings of English experientialists from the side of sensation, this individual idealism presents itself likewise as a psychical monism, but as an absurdly narrow one. Professor Dewey points out how it fails to understand that by constituting mind, as such, the ego or subject for which all experience exists, it artificially divides our unitary consciousness into two separate constituents, and takes the subjective constituent to be the bearer and realiser of the objective constituent; while in reality both constituents are but elements of consciousness in general; are in fact completely unified in eternal and absolute consciousness.

Now it is perfectly true, that during conscious awareness object and subject-consciousness are inextricably interblended so as to constitute a unified experience. It is true also, that the veritable subject that thus consciously experiences, and that furthermore imparts intelligent meaning to such experience, cannot itself form part of these its own fragmentary and transient moments of awareness. Comprehending them all, it must evidently be an enduring, at least a relatively persistent being. It is undoubtedly to such a persistent

being or subject that experience gradually accrues, and in whom it is all retained and organised into more or less systematic order.

But is there the least warrant for assuming that this persistent subject, weaving thus intelligent experience out of its transient conscious states, is itself "consciousness" or "intelligence"?

Intelligent consciousness is very obviously only one of the functions of the persistent subject, and by no means its being or essence. And the experience accruing to it, that at least of the external world, bears nowise the characteristics of Platonic reminiscence, does nowise consist in self-revelation, in the becoming explicitly aware of what already implicitly existed within itself. We may indeed say, that our emotions, when aroused, constitute such self-revelation. But, for instance, yonder visual figuration, consisting of nothing but colored forms, though intelligently interpreted as a landscape with plains, woods, and creeks; interpreted thus by the aid of no end of former experience; this landscape now perceived by me for the first time was certainly not implicitly immanent in my consciousness previous to all my individual experience. Its conscious realisation does assuredly not render explicit as objective experience what for ever has been an organic member of my self-consciousness. What is immanent in my being—not in my consciousness—is the sensorial faculty of symbolically picturing whatever sense-affecting agent is placed before me. The conscious picture itself is an evanescent phenomenon, having no steadfast existence or reality.

To assert—as is usually done by transcendentalists and by Professor Dewey among them—that our individual experience, when—as mostly occurs—not actually conscious to ourselves, exists then nevertheless as conscious content of a universal being; to venture such an utterly gratuitous assertion, even when merely hypothetically advanced, transcends all legitimate inference from given facts. When declared to be positively justified by given facts, it all too obviously betrays the theological bias by which it is inspired, the set purpose of vindicating the religious consciousness which has faith in "the unity of man as spiritual with an absolute spirit."

Through consciousness we indeed become aware of the divers

faculties of our being, together with their functionally accruing experience. All this, however, rises into conscious awareness only at times, when casually awakened. To give to the vast system of consciously latent being and experience the name of "consciousness," to call that "consciousness" whose principal distinction is to constitute a persistent subject with an organised system of experience abiding for the most part in extra-conscious latency; to do this only because all this extra-conscious existence may and does at times become more or less conscious; this is surely committing the fatal error of denoting a state of things by its outright opposite.

There is no denying that most of the content of our being is usually not present in consciousness. Consequently, abiding thus outside consciousness, it cannot possibly form part of consciousness either individual or universal.

Nothing could be more to the point than Professor Dewey's statement, that "only a living actual fact (let us say existent instead of fact) can preserve within its unity that organic system of differences in virtue of which it lives and moves and has its being." There is not the least doubt that the subject, who at times is conscious of more or less of his experience, is exactly such an existent as here described. But consciousness, though the medium in which and through which everything is realised, is itself but an intermittent function of that living actual subject which preserves within its unity the organic system of differences in virtue of which it lives and moves and has its being. The consciousness of the subject conveys information to it only interruptedly and in broken bits. These become organically unified into a more or less consistent totality of experience. But this process of unification takes place, not in the dream like stuff which makes up consciousness, but in the persistent, extra-conscious matrix whence our ever lapsing, ever renewed moment of conscious awareness emerges ready-made.

The subject capable of thought and feeling becomes thinkingly and feelingly manifest to *itself*, when its functions through which consciousness arises are in operation; becomes manifest as bodily active to *other sentient beings also*, when its functions through which such activity arises are in operation.

But if the real nature of the experiencing subject is not self-consciousness or intelligence, what then can it be?

Idealists, and with them Professor Dewey, become such by believing that the perceptually realised objects are themselves veritable reality, and not mere symbols of extra-conscious reality. Now can they in all sincerity bring themselves to believe that a baby—to use one of Professor Dewey's illustrations—which experiences a sensation, say a pain caused by the prick of a pin, that this pain-experiencing baby is no other than that colored form within the perceptual consciousness of may be half a dozen spectators; and that it is the perceptual pin within the consciousness of each of them that has pricked the baby and caused the pain?

Does the pain-experiencing baby derive its existence from the fact that the intellect of the spectator interprets the perceptual form within his consciousness to signify a baby, which has forever implicitly formed part of the organic content of his own self-conscious ness?

Surely the pain experienced by the baby is not experienced by the perceptually realised baby, not by the baby existing as interpreted perception in the consciousness of him who perceives it. The pain experienced by the baby does nowise form part of the consciousness of the perceiver. Consequently and incontestably, the subject that experiences the sensation, that experiences in fact any kind of feeling or thought, is itself an extra-conscious being, a being only casually and symbolically realised in consciousness.

And if the perceptual baby is merely a conscious symbol signalising an extra-conscious existent, then all perceptual existence, all that constitutes what we perceptually realise as nature, symbolises likewise an extra-conscious reality, a reality that has power so to affect our sensibility as to arouse in us perceptual representations of itself and its characteristics.

The matter stands then exactly as denied by Professor Dewey. It is indeed the "baby thing-in-itself which is affected," and it is "a world thing-in-itself which calls forth the sensation." It is not, as maintained by Professor Dewey the baby known to him as his own perception which experiences the sensation by having been

pricked within the beholder's consciousness by a perceptually constituted pin.

But if the entity, which affects the beholder's sensibility and awakens in him the percept of a baby, exists in verity outside his, the beholder's, consciousness, and is known to him only as thus symbolically pictured by his own percept; such sense-affecting entity is, on the other hand, nowise to be construed as the unknowable "First Cause," nowise as that protean Persistent Force, which Mr. Spencer imagines capable of assuming every kind of mental or material appearance.

The so-called material or physical modes which constitute in the beholder the perceptually realised baby, and the so-called immaterial or mental modes which are experienced by the baby as his sensations and emotions; these material and mental modes are in no sense the manifestation of an "Absolute Force" or "inscrutable Power," as our Spencerians would lead us religiously, and almost theologically to believe.*

The material modes that constitute the perceptually realised baby are awakened in the beholder by a definite sense-affecting existent, which is thus revealing not only its bare presence, but most vividly and minutely also its perceptible and distinguishing characteristics. And in the same manner it makes also known that it is interdependently connected with the vast system of sense-affecting entities, that constitutes nature in general.

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* Mr. Spencer grapples with the problem of ultimate reality from three different and widely divergent standpoints. First, by assuming that our out and out conditioned nature and knowledge presupposes the existence of an "Unconditioned Reality," he arrives at the conception of an "Absolute Cause." Second, by attributing—in keeping with the principle of the Conservation of Energy, all physical and psychical activity to the interconvertible play of modes of force, he arrives at the conception of an "Absolute Force," whence all these manifest modes proceed; hinting, moreover, that, as our experience of force-manifestation is of a psychical nature, the "Absolute Force" may rather be conceived as psychical than as physical. Third, besides explaining at times that the psychical and physical modes, instead of being interconvertible, are only two different aspects of one and the same reality—and contrary to his assumption of the interconvertibility of psychical and physical modes proceeding from an Absolute Force, he advocates in his *Transfigured Realism* the view, that our perceptual consciousness figures representatively the corresponding characteristics of a world of things-in-themselves. No wonder that Spencerians are getting somewhat mixed, as the saying is.

All reality is interdependently conditioned. The "Unconditioned Reality" of the Hamiltons, Mansels, and Spencers, has nowhere any existence, either in consciousness or outside of it. It is altogether a fictitious, superfluous, and most misleading conception.

As regards the mental modes experienced by the baby, they are evidently exclusively his own affections as a highly and most specifically organised being, and not by any means are they modes of appearance of that most empty abstraction "The Unknowable," that has with so many believers usurped the throne of their former anthropomorphic Deity.

This coiled up thing over there, is it a rope or a snake? I see it move, and my intellect interprets it to be a snake. Surely the significance of the interpretation does not consist in my realising what was already implicitly contained in my consciousness, but in knowing that in contact with the being out there, which forms no part whatever of myself though perceptually realised by me, I shall become affected in certain additional ways taught by former experience.

Will any unbiassed and competent judge assert that the far-fetched idealistic interpretation is more in accordance with what we really experience, than the very simple one here given?

No doubt the immediate object of physical observation is not the thing-in-itself, but its perceptual realisation. It is such, however, only as symbolical representation of something subsisting outside consciousness, only as a conscious affection awakened with compulsory force in the observer from without. The observer offers his diversely differentiated and delicately attuned sensibilities to the outside world and carefully notices its specific modes of reaction upon definite modes of stimulation. This in truth is the method of scientific observation, from which all conclusions regarding the characteristics of nature are drawn.

The conscious subject phylogenetically evolved in constant interaction with the medium in which he lives and moves and has his being, possesses realising faculties so adjusted as to correctly subserve his needs in relation to such a medium. He then furthermore uses these faculties in order to gain a fuller and more accurate

knowledge of further perceptible characteristics of this same medium.

A monistic interpretation of nature cannot possibly be reached by assuming consciousness or intelligence to be ultimate reality, and as such the One and All. It can be reached only by recognising that consciousness is a function of subjects that stand in definite relations to the rest of nature, and have power along with the other constituents of nature so to affect the sensibility of other sentient beings as to cause to arise therein the symbolical representation of themselves.

Systematised experience consists in the organised totality of such symbolical representations. And this organised totality of experience exists as potential possession of the subject in extra-conscious latency, in what we figuratively call memory. Emerging on occasion into consciousness it reproduces more or less faithfully the order and connection of the manifold that constitutes the sense-affecting universe.

In highly developed sentient subjects self-realisation or the "inner life," which arises from the activity of their emotional and above all their social nature, gains predominant influence over their sensual and perceptual experience, urging them so to transform the given aspect of the outer world as to render it subservient to the aspirations of that inner life.

EDMUND MONTGOMERY.

THE CONSERVATION OF SPIRIT AND THE ORIGIN OF CONSCIOUSNESS.

THE consideration of the relation that subsists between body and mind is a topic that has led to several theories, one of which has found favor with many on account of its supposed monistic implications. Dr. Carus in his work "The Soul of Man" seems to adopt that theory, and his method of explaining the matter is one of notable superiority. He says:

"Matter and mind (the elements of feeling) are to be considered as one—not the same, but one. They are as inseparable as are the two sides of a sheet of paper. If we look at it from the mind side its activity represents itself as elements of feeling and all kinds and degrees of actual feelings. If we look at it from the matter side its activity represents itself as motions or as all kinds of potential and kinetic energy."

This doctrine of a double-faced unity has no doubt been favored because it has seemed the best and perhaps the only refuge available against the various forms of dualism. Still this same doctrine is very far from inducing that final pacification of mind which we rightly expect from a competent theory. It is open to the charge of being arbitrary, and it brings no access of insight.

The expressions of those whom we must suppose to be well affected towards any doctrine that gives promise of a monistic issue show this to be the case. Thus Tyndall says:

"I do not think that he (i. e. the materialist) is entitled to say that his molecular groupings and his molecular motions explain everything. In reality they explain nothing. The utmost that he can affirm is the association of two classes of phenomena of whose real bond of union he is in absolute ignorance. *The problem*

of the connection of body and soul is as insoluble in its modern form as it was in the prehistoric ages."

And Huxley protests that,

"How anything so remarkable as a state of consciousness comes about as a result of irritating nervous tissue is *just as unaccountable* as the appearance of the Djinn when Alladin rubbed his lamp."

In truth those who might be expected to speak with considerable reserve in regard to the inabilities of human attainment have emphasised without due sobriety the insuperable aspects of the problem. The past history of culture should have counseled caution, especially in view of the certainty that consciousness is *somehow* dependent upon nerve action.

It is submitted that the recent progress of science should induce a hopeful temper of mind on this question. Not only have physiology and psychology brought to light more results in the last decades than in centuries past, but in positive monism and formal thought philosophy has also attained to a clearness of method which will prove beneficial to all special investigations. A clear and concise statement of the new positivism is found in the chapter Form and Formal Thought of "Fundamental Problems" by Dr. Carus. Any one who has watched the development of the algebra of thought and the philosophy of logic, will naturally expect signal aid towards the solution of the world-questions from a proper consideration of form and the laws of form. In Dr. Carus's book and especially in the above mentioned chapter will be found a most popular exposition of that subject.

Those who hold that form and formal thought is the very constituted means by which our information with respect to real existence may be improved, ought to regard it a decided step towards the solution of any hitherto apparently inexplicable problem, if we only but find ourselves able to *formulate* an idea or process that mediates between the known and the unknown, and represents to our insight how it is possible to think of a phenomenon in accordance with notions that yield perceptible imagery.

Riemann in what has been well characterised as his "stu-

pendous" essay on "The hypotheses that lie at the basis of geometry" remarks:

"We are quite at liberty to suppose that the metric relations of space in the infinitely small do not conform to the hypotheses of geometry; *and we ought in fact to suppose it if we can thereby obtain a simpler explanation of phenomena.*"

So also Jevons in his "Principles of Science" commenting on "The Character of the Experimentalist" refers to the audacity of speculation that characterised Faraday and that was the leading of his efforts towards some of his most brilliant discoveries. He says:

"We have only to notice the profound conviction in the unity of natural laws, the active powers of inference and imagination, *the unbounded license of theorising.*"

Theory must precede experiment. We must formulate before we can verify. The words of Faraday: "Let us encourage ourselves by a little more imagination prior to experiment," shows us the method he followed.

Recent developments in connection with the study of electricity supply us with at least an analogy that may instruct us as to how we may *suppose* the appearance of consciousness as a result of nerve action.

The nature of electricity has long been an unformulated thesis. That it may be produced by the motion of matter is proved by every dynamo in operation: indeed the oldest experiments in static electricity are to the same effect.

At the present time it seems to be an acceptable doctrine or at least a good working hypothesis that electricity and magnetism are manifestations of that once hypothetical medium called *the ether.*

Prof. G. F. Fitzgerald in his opening address before Section A of the British Association for the Advancement of Science in 1888 made these very important remarks:

"In a presidential address on the borderlands of the known, delivered from this chair, the great Clerk Maxwell spoke of it as an undecided question whether electro magnetic phenomena are due to direct action at a distance or are due to the action of an intervening medium. The year 1888 will ever be memorable as the year in which this great question has been experimentally *settled* by Hertz in Germany. Henceforth I hope no learner will fail to be impressed with the theory—*hypothesis no longer*—that electro-magnetic actions are due to a medium pervading all known space."

That the ether really exists: that it is a proved fact and that it is the substantial basis out of which electricity and magnetism arises, are pretensions too momentous to remain unchallenged if they lacked good evidence in their favor. Yet instead of awakening dissent among the critical hosts of science, these utterances of Professor Fitzgerald have not only been received as voicing the convictions of the scientific world but they are confirmed from time to time by the sometimes tacit and sometimes express assent of all who discourse upon the matters involved.

Prof. Oliver Lodge, one of the leading scientific men of England and an acknowledged authority upon the subject has recently published a work entitled "Modern Views of Electricity." In his preface he says:

"Few things in physical science appear to me more certain than that what has so long been called electricity is a form or rather a mode of manifestation of the ether."

He supposes the ether as a compound of two constituents corresponding to positive and negative electricity. Each of these constituents has affinities, cohesions, or entanglements with the various kinds of matter, which affinities, cohesions, or entanglements are greater or less according to the kind of matter involved, so that by the motions of certain sorts of matter under proper conditions the two constituents of the ether are torn apart or separated, or in the language of dynamics, strained. But at the same time these constituents also tend with unceasing persistence to reunite and saturate one another into a state of absolute neutrality. Separate, these constituents show an existence and an energy towards one another. United neither of them shows any existence at all nor any efficacy whatever. They are as though they did not exist.

It is of small moment to the present purpose whether or not this electrical theory is well grounded. In either case its very formulation supplies us with a suggestion as to how it is possible to think of consciousness as a product of nerve action.

Just as the ether is supposed as the substantial basis out of which in consequence of the motion of matter electricity and magnetism becomes manifest, so may we suppose an analogous (per-

haps the same) basis surrounding and permeating all things, and out of which in consequence of nerve action, consciousness becomes manifest.

Why may we not suppose this consciousness basis, (which suppose we name spirit,) to be the ultimate substance which being variously modified by energy manifests in one case the phenomena of mind, in another the phenomena of electricity, magnetism, etc., and then again in a third case that phenomenon, mass, or inertia, which is the essential attribute of matter?

As with the ether in the absence of any cause that separates it so that electricity and magnetism become manifest, so spirit may be supposed to be utterly without manifestation and neutral until nerve action modifies its condition, when like electricity in the one case, so here, consciousness becomes manifest.

Why may we not imagine spirit as composed of two consituents corresponding to feeling and volition which united saturate one another into neutrality, but which separated by nerve action manifest feeling that tends to pass into volition, or volition that tends to pass into feeling? This would be in accordance with the phenomena of reflex action which is supposed to be the elementary type of mentality.

This is in harmony with the views of the author of "The Soul of Man," for he, although for other reasons, also explains the origin of consciousness from tension. He says:

"Consciousness is an intensified state of feeling caused through tension. It lies between a want and its satisfaction. Satisfaction not being immediately attainable, feelings are no longer in a state of equilibrium, and it is this tension which concentrates and intensifies feeling into consciousness.

"It appears that consciousness never arises without a certain tension. Days spent in an idyllic life flow away almost unconsciously; there is little friction, there are no problems to be solved; there are no unsatisfied wants, or if there are any, they are quickly and easily attended to. There is no need of consciousness, there is not much tension to call it into play, so life passes dreamlike as a tale that is told. The more life is burdened with problems that demand a man's full care and deliberation, and the stronger are his attempts to solve the problems of his situation, the more intense will his consciousness be.

"It appears to me very doubtful whether conscious beings could exist in a world—if such a world were possible at all—where the struggle for existence was

unknown; for it is the struggle for existence that presents the first and most imperative problems to living and feeling beings."

Spirit or the elementary basis of consciousness considered as a quantity, would on this supposition remain the same, but the forms of its manifestations would change. There would be more or less straining of spirit and accordingly more or less manifestation of consciousness. Or to formulate it in one sentence, we would have to postulate *the conservation of spirit.*

Such a supposition or some similar supposition if tolerable would bring our ideas into some sort of accord with scientific customs of explanation, and would, extricate our minds from that state of utter stultification into which they are cast whenever they are confronted with the relations of body and mind.

FRANCIS C. RUSSELL.

ON CRIMINAL SUGGESTION.

A WIDELY known criminal trial has brought before thoughtful minds, on both sides of the water, this question, viz.: Whether a subject in a hypnotic condition possesses any free will, and whether in such a state, it is possible to transform him into a criminal or at least, for the time being into becoming an accomplice in crime! It is not the first time that this question has been agitated; indeed at the very beginning of Mesmerism, as it was then called, this idea was brought forward.

It was clearly formulated by Dr. Charpignon, whose own opinion nevertheless is, that it was "much easier to restore moral rectitude to a somnambulist who had fallen therefrom, than to pervert the integrity of character of a woman of high moral standing." In 1866 Dr. Liébeault, in his work on, "Sleep and Kindred States of Being," of which at that time there were but six copies sold, coincides entirely with this opinion. The passage is too noticeable, not to be quoted in its entirety. (P. 524.)

"We may postulate, as a first principle, that a subject during the state of magnetic sleep, is at the mercy of the hypnotiser. I have made experiments that have confirmed me in this opinion; I have many a time, removed the hats of such persons, searched their pockets, drawn off the rings from their fingers, untied their shoes, etc., ... without their having noticed the action at all, or having made the least resistance, the isolation into which I had thrown them, being the cause of this absence of all consciousness. . . . .

"How very grave, the possibilities, are which may ensue from this state of being, we may readily conceive! What I have advanced here, is the result of certain experiments which I made upon a young girl, who, while being very intelligent in her natural waking condition, became during hypnotic sleep the most cross-

grained and wilful person I had ever had to deal with. Nevertheless I always ended by mastering her will. I was able to excite in her mind the most criminal resolves; I roused her passions to a high degree, I was able to cause her to fall into a violent rage with a person, to fly out upon her with a knife in her hand; having displaced in her mind the sentiment of friendship, still armed with that instrument, I sent her to stab her best friend, whom I told her she saw in front of her; she obeyed, the knife burying itself in the wall opposite. I almost prevailed upon another young girl, who was however less under the influence, to kill her own mother, and though she wept, she actually prepared to do the deed.

"After all, it has been known for a fact, that a man, who, up to that moment, was of sound mind, hearing a voice continually repeating: 'Kill your wife. Kill your children'—has obeyed this command, incited thereto by an irresistible impulse; and shall the hypnotic subject already predisposed to hallucination, escape this same involuntary impulse? I am firmly convinced, after having made many other experiments, that a subject to whom is suggested the commission of any bad action, will carry out the crime after his awakening, by reason of what has now become in him a fixed idea. The most moral will become vitiated, the highest-minded perverted.

"If it has already been found possible to reform a woman of loose morals and bring her to abandon entirely her evil courses, why cannot the reverse be effected and by the same means? It would be in the power of the magnetiser to suggest to his subject, not only to become a tale-bearer, a calumniator, a thief, dissolute, etc., at some period subsequent to the magnetic sleep, but, he might use him, for example, as the instrument of his personal vengeance and the poor dreamer, unmindful of the primary incitement to the criminal action, would commit on another's account, instead of on his own, the evil deed, prompted and forced on thereto, by the irresistible suggestion and will, imposed upon him by another person. And when the crime shall have been consummated, where shall he find the medical jurist, who can hold up to Justice, the torch which is to throw the Light of Truth upon the act, and challenge the innocency of a man, who, up to the moment of the crime never exhibited the slightest sign of insanity, had shown every mark of a sound mind and yet, when convicted of the dreadful deed, states with every apparent sign of good faith, that he has committed it of his own accord? And who can tell whether such cases have not already taken place."

These momentous words passed unnoticed. At that time, the world did not believe in Hypnotism. M. M. Richot and Charcot restored it to a place of honor. The School of the Salpêtrière made its advent, and saw in Hypnotism a pathological condition. Simultaneously with this school of thought, there arose the rival one at Nancy, which following its leader, Dr. Liébeault, saw in hypno-

tism, only a psychological phenomenon. One of the masters in this school, M. Liégeois, Professor of the Faculty of Law, in 1884, in his pamphlet on "Hypnotic Suggestion, in relation to Civil and Criminal Law" also propounded to the public this idea of criminal suggestion.

M. Liégeois, like M. Liébeault, did not confine himself merely to theory. He went on to demonstrate and prove his thesis by conclusive experiments.

Strange to say, the Salpêtrière took issue on this point, adopting and defending the opposite opinion.

I would now ask permission to raise my own voice in this debate, and I am the more emboldened so to do, inasmuch as my own personal observations and the study which I have brought to bear on this matter, have caused me to pass, so to speak, from one rival camp to the other. The thesis upheld by the School at Nancy, while it found in me at first an adherent, finds me to-day an adversary.

Just a word about myself to the readers of *The Monist.*

I have always been a believer in Magnetism. At the outset, and until towards 1875, merely on the faith of books, later, because I had been present at one or two more or less public exhibitions. And it appears singular enough, that though thus imperfectly trained in the knowledge of it, I should have explained, as I did in 1869, the ecstasies and the stigmata of the celebrated Louise Lateau, as coming simply from auto-suggestion; and that even to-day, there should be neither jot nor tittle to subtract from what I then wrote, regarding it.

I only began practising magnetism at the commencement of 1886. I was returning from a visit to the Salpêtrière whither I had been attracted by my doubts on this very transference of thought and from which I returned with my doubts intensified. I have already recounted, in a series of articles, that appeared in less than a year in the *Revue Philosophique* ("Upon Memory in Hypnotic Subjects"; "On the influence of Imitation and Education in Somnambulism, as exhibited in the so-called hypnotic sleep"; etc.) my experiences, observations, and inductions. Not to speak of my contribu-

tions to the Magazines, and notably to the *Revue de l'Hypnotisme*, I introduced hypnotism into the science course of the Royal Academy of Belgium by means of two works. One, on the "Origin," the other on the "Extent of the Curative Effects of Hypnotism" (1887–1890). Besides many other polemical writings in favor of the liberty of holding public exhibitions ("Letters to M. Chiriar, Representative," 1888. "Magnetisers and Physicians," 1890): I related at length what M. Charcot and his pupils had shown me in Paris, as well as what M. M. Liébeault, Bernheim, and Liégeois, had let me witness at Nancy ("A Visit to the Salpêtrière," 1886—"A Visit to the School at Nancy," 1889).

At the time then, that I took upon myself to hypnotise, I firmly believed that the subject became the property of the magnetiser; passing over, as of no importance, the manifest resistances that I met with at every point and in every form on the part of subjects, who, in all other respects I found perfectly adapted to such experiments; as for instance, one who permitted his tongue to be pierced with a large darning needle by my sceptical colleague, Dr. Masius; and to be burned several times, both with a red hot iron and by thermocautery, by my colleague, the surgeon Von Winiwarter, both these experiments having reference to the curative effects of hypnotism. Thus, adhering entirely to the belief of M. M. Liébeault and Beaunis, at the close of 1886 ("A Visit to the Salpêtrière") I wrote these words:

"M. Beaunis's statement is perfectly exact. The somnambulist, in the hands of the hypnotiser, is less than the *corpse*, which the perfect disciple of Loyola should resemble. He is a slave, with no will other than that of his ruler, and in order to fulfil the commands laid upon him, he will push precaution, prudence, cunning, dissimulation and falsehood, to their extremest limits. He will open and shut doors noiselessly, walk in his stockings; will listen and watch, with what keen sight, what acute hearing! He will remember anything and everything you want him to, will forget all you desire him to forget. He will, in good faith, accuse a perfectly innocent man before a Court of Justice. He will have seen everything, that in reality he has never seen, if you command him so to do; he will have heard, what he never could have heard and done everything that he never could have done. He will swear by his Household Gods, that he has acted throughout, of his own free will, without any external pressure, will invent motives if need be, and will completely protect and cover his hypnotiser.

"Theoretically, such a power is the most dangerous thing on the face of the earth! I believe though, that practically, with the exception of what might relate to physical or moral abuses or tampering with testamentary wills, there is actually little or no danger. It appears to me the fear of this has been unduly exaggerated."

In a foot-note of mine, while mentioning with highest praise the memoir of M. Liégeois, I added further: "I do not express any alarm that I cannot show a good reason for." Among other reasons, I pondered on the difficulty, say rather, the impossibility there is, of obtaining from the subject an absolute abnegation of will-power, whilst at the same time we allow him to retain the necessary free will to cope with any unforeseen accidents which might occur to compromise the fulfilment of the thought and action suggested.

Two or three months later I should not have expressed myself thus; and hence the remarks that accompany the experiments related in my articles on Hypnotic Consciousness, *Revue Philosophique*, Febs, March, 1887, experiments which took place about a year previous to this (see the note to the contributed articles, Feb. 1887, p. 119). It may there be noticed that my assent is tempered by certain marked reservations. I was even then opposing practice to theory, i. e. I narrowed down these apprehensions of danger to two legitimate causes of alarm, viz. attempts against morals, and tampering with testamentary wills.

Upon these two points I am still of the same opinion, with this exception, that what I then feared probable, I now regard as exceedingly problematic. I mean to say, that a villain who was contemplating the perpetration of a crime, would not easily find an accomplice in a subject of good moral standing. And in any case, I still think as I thought then, that such an accomplice would not only be inapt, but compromising. It is this latter point, I wish to demonstrate to you, by the following criticism upon an experiment never before published.

At the end of May, of last year, I was passing through Nancy with some friends, among whom was Dr. L. Frédéricq, Professor of Physiology at the University of Liège. We were spending the evening at M. Beaunis's house together with M. M. Liébeault, Bernheim, and Liégeois. Naturally this question of Criminal Suggestion

came upon the *tapis* and was discussed in all its phases, without advancing one step towards its solution. We made an engagement to meet at the hospital on the following day, where M. Bernheim invited me to be present at an experiment, which he maintained would convince me. I will relate at length the occurrence, for in such cases, the slightest details may acquire very great importance.

M. Bernheim threw into the magnetic sleep a great, tall fellow, quite easily influenced, and whose illness did not prevent him from walking about in the ward.

"Presently, when you have waked up, you will go and steal an orange from the patient that you see over there, in that bed opposite. Remember that what you are going to do is very wrong; it is strictly forbidden by honesty and by the law, and you will run the risk of being punished." The man is waked. He appears to be collecting his thoughts. He rubs his forehead, he is visibly meditating something.

"What is the matter with you? What are you thinking about?" I ask him.

"Nothing."

"You seem preoccupied."

"Well, yes, I have to do something."

"What?"

"I am not obliged to render you an account of my actions."

"Ah! one would almost say you were meditating some mischief, where are you going?"

"That's no business of yours."

"Oh! very well then, I shall watch you and follow you."

I follow him; he walks towards his companion's bed, glances at the orange, then leaning up against the window, he calls me to admire some cherries growing on a potted plant. He keeps quite still. Why? Simply because I had told him that I intended to watch him, *otherwise my presence would not have troubled him in the least.* During this time, M. Bernheim had acquainted the other patient with the intended proceeding, he nevertheless having heard the whole transaction. "I do not think he will do it," said he to the Doctor, "he is one of my mates and he wouldn't steal from me."

I walk away and join the group of persons present. I say to M. Beaunis, that this experiment will prove nothing, he answers me by a gesture of surprise. The subject, as soon as he sees me go away and *thinks that I am not watching him any more*, stretches out his hand, seizes the orange that is behind his mate's pillow, *the latter meanwhile looking full at him.* A score for M. Bernheim, but one also for M. Delbœuf ! I should need twenty pages at least of commentary on this experiment. But I shall only allow myself to point out the essential points.

This hypnotised subject then, or to speak more correctly, this man to whom a thought has been suggested, after I had warned him that I was watching him, and from whom I never took my eye, goes with the unerringness, so to speak, " of the falling stone," to carry out the suggested action, not however without a certain distrust of me, and this only, because he had been forewarned. And moreover in his dim consciousness, it is I alone, whom he is watching in that clumsy fashion, in order to seize upon some momentary forgetfulness on my part. He has never noticed at all, that his mate is intently watching him and following his every movement with open eyes ; so he steals the orange from under his very nose! Let us not forget that it was M. Bernheim the house physician, who suggested to him to take the orange. But M. Frédéricq himself would equally well have fulfilled that command, even preceded as it was by the little homily, recorded above. Why should he have disobliged M. Bernheim ? But indeed, the logic of my opponents is very weak. If, say they, a somnambulist resists criminal suggestion, it is because he is not a susceptible subject, or, that the experiment has been ill conducted, or, that the suggestion has not been strong enough. At that rate, it is useless to continue experimenting, if failure is always to be explained away. On my side, I might with equal reason, argue, that they had been dealing with some licentious mind, as yet all unknowing its inner self, or with a born criminal or a latent thief ; and though I object to this kind of argument, it would often prove to be more legitimate reasoning than theirs. Who among us is absolutely virtuous ? How many actions which the law calls criminal have we committed, or might we com-

mit, under the pressure of circumstances, without a shadow of remorse? But let us further examine this experiment.

Our subject then put the orange in his trousers' pocket which stuck out very noticeably. This man might be a criminal, but he was not a dissembler. Looking him straight in the face I said: "What have you been doing?"

"Nothing, I have just done my errand."

"You have stolen!"

"What nonsense!"

"What have you got in your pocket?"

"Nothing" (notice the absurdity of this reply).

"What do you mean?"

"Nothing!"

"What do you call that?"

"Why! it's an orange! it's a very fine orange! *Ma foi!* I can't imagine how it came there!"

M. Bernheim intervenes: "You took it from a fellow-patient, from a comrade! That was very wrong."

"Yes, that's so, but I wanted it. Look! did you ever see such a fine orange? I took a fancy to it and I determined to have it. Besides, *he hadn't seen it* (!) It's not stealing when it isn't missed."

Then I asked: "What is that you said?"

"Why, yes, it is not stealing to take what nobody misses," answers he, with a scarce perceptible cunning and significant wink.

A few minutes later, after we had ceased noticing him, he came up to M. Frédéricq of his own accord laughingly told him that he was in the habit of abstracting tobacco from his companions on this same ground, that if they never missed it, it was not stealing. "It is all in fun, you know!"

I conclude therefore, that this subject had in him latent tendencies to theft, or if you prefer it, to pilfering. And dare any of us, honestly confess to himself that we have not, deep down in ourselves, the germs of any such vices? Who among the most upright of us, does not consider himself perfectly entitled to defraud the government, or to get the better of a Railway Company, or quietly to appropriate an object which he may casually find?

M. Liégeois will very likely say to me: "We will grant that this experiment has not fulfilled the desired requirements; the subject has not very high moral qualities, and he juggled a little. But here now, are some experiments absolutely unimpeachable." Thereupon M. Liégeois relates the histories of Miss E . . ., of N . . ., of Mme. G . . ., and of Mme. C . . . Here are the facts as collated by him in the Gouffe trial.

First narrative. M. Liégeois believed that he had produced in Miss E . . . such absolute automatism, so complete an annihilation of moral sense and of all liberty of action, that he caused her, without moving a muscle, to place the muzzle of a revolver close to her mother and fire upon her. The youthful criminal appeared completely awake and far calmer than were the witnesses of this scene. (Take notice of this.) Her mother, immediately reproaching her and telling her that she might have killed her, Miss E . . . answers smiling, with a great deal of common sense: "I have not killed you, since you are speaking to me now."—"Is any one likely to believe that this is merely pretence and acting," adds M. Liégeois, "that a daughter will amuse herself by firing at her mother with a revolver, *which she does not know is not loaded*, simply to deceive the public?"

Well, shall I say it? The hypothesis of simulation, the simulation which is practised in the hypnotic state appears to me to be the only plausible explanation. The calm, smiling attitude of Miss E . . . is an unanswerable proof of this. I have no doubt that if in a dream she had seen herself firing at her mother, she would have suffered as in a terrible night-mare.

Lately, it was in the beginning of January, I dreamed I was present at a sale of paintings. Among others exposed for sale, there was a long picture, nineteen or twenty feet high and less than three feet wide, representing the assumption of some saint. Hardly had the auctioneer mentioned the price, 6,000 francs, than I made a sign of assent. It is knocked down to me. I start for home with my purchase, but on the way I am seized with remorse. Where shall I hang the religious picture? And even if I find a place for it on the staircase what will it look like in my house, with its old black frame and its extraordinary dimensions? And what a price to have

paid, at such a moment when the house bills are pouring in! In the midst of these reflections, I woke up, my heart was beating tumultuously and during the remainder of the night I continued under the most disagreeable impressions. In spite of my knowing that I was awake and reasoning with myself, congratulating myself that it was nothing but a dream, the enormity of my absurd action weighed upon my mind and I kept continually dreading the reproaches of my family, when they should learn the stupid bargain I had made. How widely different is this mental distress from the placid, smiling condition of Miss E . . . and how naturally one is brought to suppose that during the hypnotic state the subject is not even under the sway of the ordinary illusions of dreamland.

M. Liégeois affirms that Miss E . . . *was not aware that the pistol was not loaded.* I do not believe it. Upon what grounds are we to infer that a somnambulist is an imbecile? You and I, and everybody would easily surmise that M. Liégeois's revolver was not loaded! Then why should not Miss E . . . surmise the same? Is it not for the very reason that he handed it to her, to fire at her mother, that she would opine as much? Might she not have gathered this from the attitude of the spectators, full of expectancy unmixed by any apprehension? and might she not have wished to astonish them by her docility and *sang-froid?* All sorts of suppositions are both rational and possible. Besides all this, somnambulists who are absorbed in the work in hand, generally speaking, show a quicker and surer perspicuity; their sensibilities are finer, their quickness, their memory, overstep the ordinary limits as exhibited in their normal state. Do we not hear of scholars, who in the hypnotic sleep, learn their lessons in a very short time and write their essays admirably? I have recorded in the *Revue Philosophique*, August, 1886, some facts about a subject, upon whom I experimented before one of my classes.

"The experiment I am about to give an account of might serve very well as the explanation of many a miracle. B.* is in the hypnotic sleep. We wish to give him some peculiar order, which he shall execute, after he is awake, at a special signal. The signal is to be a knock given by me on the desk; the action, to carry a

*A lad of about 15, very bright. Has been one of Donato's subjects. Very susceptible and having been hypnotised in a great many public séances.

glass of water (a carafe of water and glass being on a chair) to the student Eucher. He does not know any of the fifteen students present, nor has he yet heard their names. The pupils take their places, without any special order, some standing, some sitting. B. is awakened. We chat a little. I give the signal. B. rises, fills a glass, and *without the slightest sign of hesitation*, carries it to the student mentioned before, who was sitting on one of the back benches, beside a fellow student. We looked at each other with stupefaction. The intention of the experiment had been, to see how he would obey an obscure command. There were in my audience, certain persons, with leanings toward belief in second-sight. This result seemed to overthrow all my convictions. I again throw him into the sleep, and I command him to carry a glass of water to the student Gérard; we are all standing, awaiting with impatient curiosity what will take place. B. fills the glass and this time sends a questioning look over all the spectators, presents the glass first to one, then to another, and finally I had to point out the student Gérard, to whom he brought the water and made him drink it. I again put him to sleep, and asked him to whom he carried the first glass of water. To M. Eucher—Did you know him? No—How did you recognise him? —By his attitude, he looked as if he wanted to hide away."

And this is how the mystery was solved. We had unconsciously prepared the scene, and it was this preparation which betrayed us. But it is none the less a remarkable example of the perspicuity shown by somnambulists. This goes to prove that hypnosis, instead of dulling the understanding, sharpens it.

The second of M. Liégeois's experiments appears to me quite as open to suspicion, and exactly for the same reasons.

"I offered N. a white powder, of the nature of which he is ignorant; I said to him: 'Pay great attention to what I am about to tell you. This paper contains arsenic. You will go presently to such a street to your Aunt's Mme. M. *who is here now*. You will take a glass of water, carefully dissolve the arsenic in it and then you will offer it to your Aunt.' 'Yes Sir'—That evening I received the following note from Mme. M.: 'Mme. M. begs leave to inform M. Liégeois that the experiment succeeded perfectly. Her nephew offered her the poison.' The criminal remembered nothing about it, and it was very difficult to persuade him that he had indeed wished to poison an Aunt for whom he had a deep affection. The automatism had been complete."

I cannot help seeing here an erroneous line of reasoning. They conclude, from the absence of all remembrance, that the somnambulist is an automaton, and from this they go on to deduce that he swallows everything that is said to him. But, since he listens to the voice of his hypnotiser; since he knows that to accomplish the behest, he must do things that have not been expressly pointed out,

though they are understood in the execution of the deed :—such as to get the water from a well or pump—why do they not allow that he is able also to reflect upon the nature of the deed which he is told to do? Why is it that N . . ., who is aware that he is being used in an experiment, cannot say to himself during his hypnotic state, that this is only an experiment, that the paper does not contain arsenic, that M. Liégeois never would really want him to poison his aunt, *his aunt who is present at the time, and who hears every word?*

I repeat again, a hypnotic subject is not an idiot—quite the reverse. All the precaution which M. Liégeois takes to render the experiments reliabe, and conclusive, turns against the proof desired. Can you imagine the poisoner, Dr. Castaing, saying to his servant before Hypolite Ballet, whom he intended to kill, "Here is some poisoned wine, you will presently give it to the sick man, whom you see over there in that bed." If he had done this, he would not have been condemned to lose his head, but they would simply have shut him up in a lunatic asylum. And, as far as that goes, the servant might easily, without any suspicion being attached to the action, have given the poison to Hypolite Ballet, and the latter have drunk it.

But we have dallied long enough over these absurd suppositions. Let us pass on now to the third narrative :

M. Liégeois caused Mme. G. . . to fire at M. P. . ., an ex-magistrate. In order to show clearly that the revolver was loaded, M. Liégeois fired a shot in the garden and came in, showing a piece of card-board, through which the ball had passed. "With absolute unconsciousness and perfect docility Mme. G. . . advances to M. P. . . and fires. Being questioned on the spot by the Chief Magistrate (who was present at the *séance*) she avows the crime with entire indifference. She has killed M. P. . . *because he was not pleasing to her* (!) They can arrest her ; she knows quite well what awaits her. If they take away her life, she will pass into the other world like her victim, whom she sees stretched out, and bathed in his own blood. They ask her whether it was not I who suggested to her the idea of the murder. She denies it, and says she did it spontaneously ; that she alone is guilty ; she is resigned to her fate, she will accept without complaint the consequences of her deed."

The more I meditate to-day upon these experiments, the less they appear to me to prove what it is desired they should. This perfect tranquillity of Mme. G. . ., her generosity in not inculpating M. Liégeois; her resignation to the fate that awaits her, establish entirely the fact that she is present in mind and knowledge of events; and just because of this very attitude, that she possesses her full presence of mind. She never dreamed for an instant that she would really kill M. P . . . . She plays her part conscientiously, she faithfully recites a lesson which she has learned by heart and with which she intermingles side play of her own, childish tricks, as for instance, saying that *her victim had displeased her.* Let us recall to mind the patient who stole an orange, *because it was a fine one.* That Mme. G . . . sees M. P. . . bathed in his own blood, is more than doubtful. I can produce numberless proofs of facts that go to prove that fictitious somnambulists are not dupes of the illusions suggested to them; their calmness proves this. That it is possible to make them commit an action dangerous to themselves or to others, I am not prepared to deny. I will explain myself later upon this point. But from this state, to that of criminal participation, there is an incalculable distance.

That the somnambulist repeats a lesson that he has learned, is shown forth by M. Liégeois's fourth narrative.

"Mme. C . . . was to give some arsenic in a liquid to M. D . . . who was thirsty. But M. D . . . asked a question that I had not foreseen; he asked what was in the glass. With a frankness that precluded all idea of simulation Mme. C . . . answered 'Arsenic.'

"I was then obliged to amend my suggestion, and I said: 'If you are asked what is in the glass, say it is sweetened water.'

"Mme. C . . . answered the question the second time, 'Sweetened water.'

"Very courageously M. D . . . swallowed the supposed poison. Questioned by the Chief Magistrate Mme. C. remembers nothing; she had seen nothing, done nothing, given no drink to any one. She does not know what they are talking about."

Again all this is proof to me, that Mme. C. feels that she is being told to perform an innocent action. It would have been interesting to have awakened her in the middle of the act, to see whether she would have remembered her thoughts, just at the moment when she was giving the drink to M. D . . . I am not sure but that she would

have answered like Miss E . . . that she had no doubt the poison was imaginary, and the scene prearranged.

We have seen M. D . . . ask an unforeseen question, which upset the carrying out of the crime. We have witnessed M. Bernheim's patient steal an orange under the nose of its proprietor, who was looking at him. Admitting, therefore, that all had been foreseen, that M. Liégeois had warned Mme. C . . . of all the possible questions that might be put to her; that M. Bernheim had strongly recommended his subject to commit his theft secretly, and that every possible detail had been perfectly carried out—should we have even then a faithful transcript of a crime? Can we have the unerring certitude from these occurrences, that a subject in the hypnotic sleep, a bona fide somnambulist will allow himself to be used as an accomplice by a veritable criminal?

* * *

In the preceding paragraphs, I carefully analysed the slightest details invalidating experiments, in which the hypnotic subject acts the part of a criminal, in a fictitious crime. I was able to show, that in all these tests, there had been certain suspicious traits suggesting doubt as to the complete illusion of the actor therein, and I finally added: Supposing that everything had worked smoothly, i. e. that everything had been foreseen and that the subject had not been tripped up anywhere, are we authorised in maintaining that a subject thus far unimpeachable as regards a fictitious crime, would accomplish this same deed in reality? I answer, No.

In order to justify this denial, it will be necessary for us to enter into the Psychology of Hypnosis.

A person in the hypnotic sleep, as well as in the natural sleep, is not so absolutely withdrawn from the real world about him as is generally supposed. The hypnotic subject even less so, than the sleeper, for the former remains in intelligent communication with his magnetiser. If the latter tells him to take a book from a table upon which is an inkstand, some boxes, a statuette, he will pick up the book and not any of the other objects. If he is enjoined to walk straight before him in a room encumbered with chairs he will

manage to avoid them, and even if the illusion is pushed further he may knock up against them, but the action will be done quite cautiously. And this is why, in public séances, he never hurts himself, in spite of the wildness and apparent excitement of his movements. This is also the reason, that in experiments intended to demonstrate this absolute automatism, the preparation for the proposed crime, the attitude of the spectators, while the subject is carrying out his part, the integrity of the person who is suggesting the action, the calmness of the intended victim; all these things, render the suggestion less illusive than even an ordinary dream would be.

M. Liégeois asks this question at the conclusion of his first narrative: "Where is the spectator, who could believe that this scene was only a melodrama with clever acting; and that a daughter for her amusement, and solely to deceive an audience, would fire an unloaded revolver at her mother?" To this I answer: And why should she not play her part in this melodrama, when she sees M. Liégeois devise it, her mother lend her co-operation, and the audience watch it with curiosity and interest?

Here again we find the same fallacy in the argument: Because a subject does not reveal what is going on within himself, and only puts into visible speech what is suggested to him, it is taken for granted that he is going through a mental process identical with that of his magnetiser. But allow me to ask in my turn: Will it be easily credited, that a daughter, would, deliberately and without a trace of feeling, shoot at her mother, unless, she fully believed the action would have no serious consequences, and that the person who had suggested this impious deed, was only requiring her to act a part?

Hypnotic subjects do not take long to realise that they are being used as tests in experiments. Some are always gracious in responding to them, many end by refusing to lend themselves to be used in such fashion, especially in public séances. All these details go far to prove that in hypnosis, the subjects retain, at least a partial independence.

If a sleeper, who dreamed he was murdering his mother, should behold her terrified, beseeching, invoking the pity of her son, calling for help to the horrified spectators, he would feel that he was in-

duced to commit this deed by some sort of motive, which, absurd or unlikely though it might be, would still be the controlling power; in a word, the dream would be in reality a kind of incoherent and unreal drama, though composed of very real elements, in which horror would play a very present part. But if he should see his ostensible victim smiling and conversing with him amidst a company animated only by a sentiment of curiosity, he might well suspect, even in his sleep, that what he sees and what he is doing, is a pure delusion. And this is exactly what he would say to himself, should it come into his head to fire upon a *magistrate*, and for the reason *that his looks displeased him.*

These prearranged scenes fail in verisimilitude and no more deceive the actors in them, than they do the spectators or the author.

To this you may object: But, if the pistol had been loaded, Miss E. would have shot her mother! This rests upon the supposition that the mother and the spectators, still believed it to be unloaded, otherwise, their terror alone, would have been quite sufficient to call back the subject to the reality. And even with this assumption, this murder-test would have borne a greater resemblance to a simple homicide from imprudence. By this I mean to say, that so far as the spectators, the victim, and the assassin were concerned, the act would not have been changed in its character, simply because the magnetiser, had by mistake, given a loaded instead of an unloaded pistol to the subject. I need hardly remark that a real crime would never be perpetrated in this manner.

Thoroughly convinced though I was, of the impossibility of making experiments that would entirely fathom this question, circumstances nevertheless, allowed me once more to make a test which is well adapted to show that it is not as easy as some may think, to transform an hypnotic subject into a murderous automaton.

J. . . . is that excellent somnambulist to whom my experiments have given a certain notoriety. It is she together with her sister, whom I made use of in my studies on "Memory in Hypnosis," on "Imitation," and "Hypnotic Consciousness." She it is, who three several times allowed herself to be experimented upon by blistering on corresponding parts of the body; and notably in one case where

in accordance with suggestion no inflammation took place.* She is tall, robust, intelligent, industrious, healthy. She is now married and has had a child. The *accouchement* took place in the hypnotic sleep. The case being in the hands of M. Fraipont, Professor of Obstetrics in the University of Liège; and never was the power of hypnotism more remarkably exhibited.† In the case of this patient there remained no trace of remembrance whatever, after awakening.

I have gone into these details merely to show the reader that no better subject could have been found for my purpose. I have in another place (see *Revue Philosophique*, article on "Hypnotic Consciousness") pointed out certain traits in her case, which at my *début*, were strongly calculated to make me a believer in the absolute servility of the hypnotic subject; traits which I shall subsequently recall to your attention and comment upon.

To judge more fairly of the value of the experiment, I must further state, that J. is both resolute and courageous. During several summers she remained in the country in the environs of Seraing in attendance upon my wife who was in ill-health, and in whose room she slept. After the summer vacation it often happened that she spent the whole night alone with her. At the head of the bed hung a six-barrelled revolver, loaded; a precaution that we had taken on account of the well-known strikes which took place in 1886, amongst the workmen of the numerous factories in our neighborhood.

In the summer of 1887 I happened to be absent. A man came one night, prowling round the garden and fumbling at the lock of the door, which he even tried to force. The barking of the dogs wakened J., she opened the window, perceived the man, took the revolver and went down into the hall watching for the moment in which to fire at the nocturnal visitor. The man hearing the noise slipped away with celerity. And the same year that this occurrence took place, J. slept on the first floor with her loaded revolver hanging on a nail beside her bed.

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* See my pamphlet on *The Origin of Curative Effects in Hypnotism*.

† See *Revue de L'Hypnotisme*. April, 1891.

The 24th Feb. 1888, without communicating my intentions to anybody except to my daughter, and that only at the very moment of beginning the experiment, I discharged the revolver. It was six o'clock in the evening. A young lady, (herself an hypnotic subject,) and my daughter, were seated at a table, cutting out articles from a newspaper, which they afterwards tied up in bundles. I called J. and at the moment she opened the door, I hypnotised her by a motion. I said to her in an agitated tone—"Here are some thieves, who are carrying off papers."—J. came quickly forward and turning towards me said: "No sir, they are playing with them—Why sure enough they are taking them." Then she walked resolutely up to them and tore the papers out of their hands, put them on the table in front of her and in an imperious tone said: "Don't you touch them any more."

I—"You are never going to let those knaves remain in the house—run and fetch the revolver" (it was in the adjoining room). J. ran without hesitation. She returned holding the weapon in her hand and stood on the threshold. "Fire," cried I.

"Sir, we must not kill them."

"Thieves? Why certainly!"

"No sir! I will not kill them."

"You must."

"I won't do it." And she walked backwards still holding the revolver, I following her and energetically reiterating my command. "I won't. I won't do it. I will not murder." She then placed the revolver on the floor but *cautiously*. She continued to go backwards, I, meanwhile insisting and following her. "I will not do it."—Having come to a dead stand in the corner of the room, she repulsed me violently and I thought it prudent to awaken her, upon which she came to herself smiling in her usual pleasant manner. She remembered, however, nothing whatever, although at the sight of the revolver lying on the floor, she seemed to have a kind of vague recollection. She did not seem at all discomposed in manner. If this scene had taken place in a dream, she would certainly have exhibited more excitement.

This is what we may term conclusive evidence, that is to say if

ever negative evidence can be called so. Let us comment now upon these facts.

It will be noticed that J. is not the dupe of the hallucination to which she has been subjected. She does not take either of the young ladies for thieves, nor the newspapers for valuable papers. Her first answer is very significant—"No sir, they are playing with them." Besides which her expression, her attitude, the manner in which she looked at the two reputed thieves, and tore the newspapers out of their hands, had something so keenly observant, so prepared, so theatrical, that both my witnesses and myself could not possibly believe her actions ingenuous. I have often questioned her about the illusions that I suggested to her. I asked her for example, if, when I appeared to her under another aspect, for instance under the appearance of a young man, with clustering locks and a black beard, she ever perceived anything of my real resemblance. She invariably answered, that she saw my actual person, as it were in a cloud, behind the figure which I had called up before her mental vision. It is very probable that she recognised my daughter and her friend in the persons whom I pointed out as the robbers. I might have assured myself of this by causing her to recall her thoughts at the time. I am aware that the opponents of this opinion challenge, and not unreasonably, tests made in this manner because they have doubts about the suggestion.

If then the facts were such as are related, J. was playing a rôle not perhaps strictly in accordance with the rules of ordinary acting, knowing that she was reciting a part, but feeling nevertheless that she had a certain part to play and must enter into the spirit of it.

It is incontrovertible that the hypnotic subject really does play his part in precisely this fashion. When, for example, you extend his arm and defy him to put it down he seems to make an effort to lower it, but in reality he does not bring the required muscles into play at all. If you bid him keep his hand open, he never dreams of using the flexor muscles. Again, if the spectators try to change the position of either hand or arm, they meet with energetic resistance.

You will ask me how it was that J. did not carry out her acting all through? Why, after she had gone for the revolver with such deliberation, she did not fire it? It was because, the action being so rapid in its development, she had no time for reflection; she must have thought and she actually did believe, that the revolver was loaded as it always was. This is proved by the precaution with which she handled it and put it on the floor. It is evident that she thought it was a dangerous game. If I had known how the affair would terminate, I would have taken the pistol and told her that I would fire myself, in order to see what her thought and action would have been. But notwithstanding all this, supposing she had fired could we have concluded from this, that she really had latent murderous tendencies? We could not have drawn any legitimate conclusions even yet. For if, as we have just stated J. was not entirely withdrawn from her actual surroundings, she might naturally suppose that I was only joking, and that I should never make her fire on my own child, and on this account she need not feel any anxiety in fulfilling the order that I had given her.

The problem is a serious one. It is also a psychological problem. I have already partially disclosed the solution which I myself am led to give to it, and I can best translate my thoughts by these words and in the following formula: Persons in hypnosis will only execute acts similar to those they would naturally perform in dreams. I have asked a number of persons, among others, those connected with the law, whether they had ever dreamt they committed murders or robberies, and up to the present time all have answered in the negative. And yet, lawyers interrogate criminals, and it would be quite within the realm of possibility through one of those duplications of personality which I pointed out in my work on "Sleep and Dreams,"* that they should take up for an instant the rôle of an assassin. This is not an impossible supposition. Does it ever happen that the novelist or the actor, in portraying or impersonating an infamous character, the creation of his imagination, does so identify himself for the nonce, with his own invention, that even in sleep,

* *Sleep and Dreams*, p. 24 et seqq. (Paris: Félix Alcan).

for a brief space, he incorporates himself, so to speak, into the fictitious personage he has evoked. There are some very curious investigations to make on this subject. But even if any positive facts could be gathered from this, we should still be left in doubt, as to whether by post-hypnotic suggestion the subject would continue to carry out the same rôle.

Doubtless, an anatomist may dream that he is dissecting a body, but could we produce an hypnotic condition such as to make him use the knife as freely upon a living body? Can I make a butcher believe that a child is a sheep? I consider the thing to be perfectly feasible, yet my thesis is not at all weakened by this concession. We will take it for granted that, animated by evil designs you proceed to hypnotise beforehand, the anatomist and the butcher, and then bring them at a given moment to the victim! And let us further imagine that the combination succeeds perfectly. How will you manage to veil in deepest secrecy all your previous manœuvres and cast a semblance of likelihood over the culpability of your accomplices?

Will not the old adage, *Cui bono*, be quoted against you? In order to insure perfect impunity, you would have to overcome such an accumulation of material *impedimenta*, the lightest of which would suffice to dissipate all apprehensions in the minds of those in whom chimerical fears have not entirely obliterated their common sense. It is therefore evident that in so far as we know now, from experiments intended to test this theory and these possibilities of Criminal Suggestion, no positive results can be obtained. These criminal actions, so appositely named—Laboratory Crimes—bear no resemblance to actual ones.

If this debate is ever to be closed it can only be before a Criminal Court when a Troppman, a Pranzini, or an Eyraud, shall have been the operator, and it shall have been clearly shown, what interest the assassin had in making use of a so-called, unconscious and automatic accomplice. Then only, shall we be able to appreciate to what degree hypnotism may become a dangerous enemy to society at large. And even then, we shall have to remind

ourselves that all our medicines are poisons and that they have the power of destroying even more surely, than that of healing.

Thus the problem is still unsolved.

Here is a story told me by Dr. Liébault. He, or perhaps it was M. Bernheim, or both together, hypnotised a workman and told him to steal a couple of little plaster figures, that were used as ornaments on the mantel-piece in a house where he was working. He did so. The affair had been forgotten for some time because the suggestion had not been carried out on the spot. About three months after the occurrence, this same workman was arrested for stealing a pair of trousers from the front of a shop. Upon which the previous hypnotic suggestion was remembered.

My opinion is that the workman—and how many there are of the same calibre—had a very slight regard for *meum and tuum*. This reminds us of that hospital patient, whom we saw pilfering the tobacco from his comrades, and I do not think it was at all necessary to have thrown the workman into the hypnotic sleep in order to make him steal the statuettes. But from another point of view, this experiment, which did not prove anything, might give rise to party arguments from those who deem it desirable to maintain that it was the initiatory suggestion that first gave this man the taste for stealing.

To sum up in a few words this portion of my investigation; the result of my experiments and of my analyses is this: that the experiments of my opponents prove nothing.

For the present I shall confine myself to this purely negative conclusion.

But there are other grounds besides experiments on which we may examine this question. We can do so by careful observation and minute analysis of the actions of hypnotised persons.

I have said before that the degree of morality observable in the dreams of the subject, gives the measure of what may be expected from him during hypnosis.

According to my opinion, hypnotism is less powerful in inciting to actions of grave moral import, than the corrupting influence of word or example, the love of gold, or the excitement of the passions.

All truly scientific experiments have brought into prominence the analogy between physiological and incited dreams, and to-day we may say that this is the doctrine of the future. Thus if an hypnotic subject admits without opposition that he is made of sugar, or of glass, that he feels he is melting in the rain, or being broken to atoms by the awkwardness of the bystanders; if he thinks he is a lamp, or allows himself to be trundled along like a wheelbarrow; if such a subject, I repeat, refuses to steal a purse, or to receive an embrace, the conclusion forces itself upon one that the hypnotic subject has more power over himself than some persons would wish us to believe; in spite of his docility, there are some things he absolutely refuses to do.

If then, reasoning by analogy has ever been legitimate, it is surely so in this case, when the inference can be drawn that the man who refuses to give a blow will refuse to use a knife; and that the woman who refuses to give a token of affection will certainly refuse to allow of serious tampering with morals.

Let us then pay close attention to what observation may teach us.

I shall hope to be able to demonstrate by actual facts, that persons in an hypnotic condition, preserve at least a sufficient portion of their intelligence, their reason, together with freedom of action, to prevent them from committing deeds that neither their conscience nor their habits approve of.

J. Delbœuf.

LITERARY CORRESPONDENCE

I.

FRANCE.

WHEN, some ten years ago, M. de Roberty published in the *Review of Positive Philosophy* a series of articles, under the title of the "New and the Old Philosophy," I was much impressed by the work. The conception of the three types; the idealistic, the materialistic, and the sensualistic, under which nomenclature he ranged the various philosophic systems, seemed to bring order into the history of philosophy. He also proceeded to treat, after the same manner and in a very happy way, the "law of the three states" of Auguste Comte, by this means rectifying and justifying the latter. The law of the three states, wrote M. de Roberty, corresponds with the present state of philosophy, which is again explained by science, so that to whatever measure knowledge may attain to, it will be equalled by philosophy, which borrows its types and its characteristics from the sequence of facts, at the point where it leaves the sphere of explanatory hypotheses.

Since then M. DE ROBERTY has completed by a new study, his first work on this subject. In the "Unknown" he has laid his finger on one of the weak points of modern positivism; perhaps by dint of searching into details, he has shown himself a little too severe on Comte in the book about which I am going to speak to-day, *The Philosophy of the Century* (*La Philosophie du Siècle*).

This book contains a thoughtful criticism of the three doctrines that occupy contemporaneous thought; and which are: criticism,

positivism, and evolutionism. He considers these in conformance to his *criterium*, as simply the varieties of one single species and the absolutely identical manifestation of a common fund of beliefs and hypotheses held generally by all. According to him critical philosophy derives its direct origin from idealism. Positive philosophy, from materialism; and the philosophy of evolution from sensualism. Going further still, he considers critical philosophy as the legitimate outcome of sensualistic idealism; and positive philosophy, similarly, as the product of sensualistic materialism. Sensualism is thus the common ancestor; the three systems inter-penetrating each other. But the promoters of these systems must be judged with equity, put back into their proper places, and ranged according to their epochs. In my opinion, a philosophical doctrine is valuable, not so much by the clear solutions it affords us, as by its methods of procedure, may I say, even by the coloring it gives to thoughtful minds.

I do not hesitate to recognise in Kant, the strong, rough-handed workman of modern philosophy; in Comte, the most utilitarian; in Spencer the subtlest as well as the most successful. Kant possesses the greatest speculative vigor; Comte, the clearest scientific turn of mind; Spencer, the keenest conception of, and insight into, psychological subjects. Taking these philosophers as a whole, Spencer, in spite of his merits, appears to me the least original, the least remarkable of the three. His universal metaphysics has feet of clay. The classification of the sciences that he wished to substitute for that of Comte is obscure, devoid of general utility; in short the influence of Comte on succeeding generations will be more considerable than Spencer's, if indeed there are any philosophers who will be bold enough to avow themselves deliberately as Comtists.

This contradiction should not surprise us. It not seldom happens that the influence of a master continues even when his doctrines have suffered shipwreck. We notice this in the great schools of thought of the present day. We may say with truth, that the criticists are inclined to dialectics; the positivists, to methods and systems; the evolutionists to facts. The first excel in the analysis of ideas, but they expose themselves to be lost in abstractions. The

second endeavor to reduce to a system all scientific matter, but they run the risk of being either rigorists or becoming too elementary. The last while making rapid strides in the genesis of the subtler phenomena of life, incur the danger of accepting arbitrary *liaisons*, or of remaining in an inchoate condition. Each one possesses most valuable qualities, which it would be desirable indeed to meet with in the same mind. Each has rendered services which it is but just to recognise and which it would be unwise to disregard.

The main thing is always to be able to understand one another upon the question of what philosophy means and its relation to science. What M. de Roberty cares most for, in all his writings, is the elucidation of this problem. We must concede, that it is one which is worth striving after. And it is surely not asking too much if we demand of every philosopher, that he shall know, more or less, what is meant by philosophising.

Philosophy will be, in the future, very much what it has always been in the past, a general *conception of the world*. This is a fixed fact for M. de Roberty. Is it true that philosophy preceded science, or, that on the contrary it has always been and will continue to be subsidiary to it? Many are, we know, partisans of the first opinion; it has seemed to them that the sciences have separated little by little from the hazy and indistinct conglomerate which bore the name of theology, metaphysics, in a word, of philosophy. M. de Roberty does not hesitate to adopt the contrary opinion. Philosophy, according to him, has always sprung from science, it has always been the equal of science. But though he proclaims this equality as existing between science and philosophy, this does not in the least oblige him to recognise any equality in their manifestations "in history." The knowledge of a given science, implies a certain *conception of the world;* this is the supreme law of philosophical evolution. Philosophy is an abstract science of general interest, having for its end, the integration of the documentary evidence furnished by the various sciences. Comte was strongly imbued with this truth. Spencer made it his own, but he makes a more serious mistake than his predecessor, when he asserts that philosophy is able to "play an active part" in scientific discovery. In the opinion of

M. de Roberty, it is neither the antecedent of science, nor is it even to be called an art. Must it then be called a science? Or is it to be comprehended in science? Neither the one, nor the other. He prefers rather to regard it as a link (*"un trait-d'union"*) between these two different kinds of intellectual activity, science and art. The mental faculties may, he tells us, aim at subjugating nature, either in a direct manner, the result of which will be called science; or in an indirect way, in which case we name it art; or they may have still a third intention, taking a kind of middle course between the utility of *science* and the indirect utility of art, which while actively participating in both, facilitates as well the transition from one to the other, from which springs *philosophy*. "Most unmistakably identical," says he finally, "are the elements which produce a particular combination, in the one, they are called science, in the other philosophy."

But we must not confound the two propositions. "If a house is to be built of brick, does that mean that we are not to distinguish between the materials required in its erection?—that we are to apply to its construction, the ingredients and the procedures used in the making and firing of bricks? We never should build a house if we acted thus."

Let us not misunderstand this comparison! The house here spoken of is entirely figurative. The hypothesis which underlies it is universally accepted, but its primal condition is always wanting—i. e. universal knowledge. It would be presumptuous indeed, to draw, to-day, the plans and define the style of architecture which shall be used in our future philosophical habitation, since we do not yet possess even the materials wherewith to build it. We can only hope to erect such a temporary shelter, a fort, that may be swept away in a few hours, whenever the enemy shall have discovered an explosive powerful enough to blow it into atoms. I do not care very much, I confess, for the distinction spoken of "between a direct and an indirect utility" and the idea of philosophy forming a link between art and science. This way of representing the facts of the case, seems to me both cumbersome and incomplete. I will not stop here to discuss it. The thoughtful study of M. de Roberty

is not compromised by such a small detail, and I would rather remember the positive teaching which is given in the very striking book that I have just been criticising.

"Philosophy and science," writes the author, "are terms which define two principal *species* of the vast *genus* designated under the one name,—knowledge." The most marked trait of the philosophy of the future, will be the *distinction* between the two species, as *confusion* was the predominant characteristic of the philosophy of the past.

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The work of M. de Roberty gave us a methodic history of philosophy. That of M. F. Picavet, *The Ideologists—An Essay on the Scientific, Philosophic, Religious, etc., ideas and theories in France since 1789*, stretches over a very vast area of descriptive history. His book conducts us from Condorcet to Destutt de Tracy, and Cabanis; from these to Degérando and Laromiguière; it embraces thus nearly the whole of the philosophy of the eighteenth century, which it carries back to the seventeenth, from thence following the thread of its history, through the intervening years, down to our own times. The name "Ideologist" is vague, as are all the rest of the battle-cries which are used by the leaders of parties, or, that their adversaries may make use of against them. Ideology, in the sense used by Destutt de Tracy, signifies, that philosophers must confine themselves to psychological research, more particularly to that which concerns the origin and the formation of ideas, an immense field, embracing philology, ethnology, etc. With regard to the wrong sense which Napoleon attached to this word, it was justified in a certain measure by the pretensions of the philosophers in governing life, politics, and law, by doubtful hypotheses, which did not often accord with practice. It cannot be denied that since the time of Rousseau, we pass much too easily from theory to action, and that we fall back too readily on our imagination, to supplement our actual experience. We find in M. Picavet's book, new and valuable information about all the men who have contributed to the intellectual life of the French nation, during and since the time of the Revolution. We can trace there the origin of certain doctrines,

which have appeared to spring up suddenly before our eyes, and shall often be extremely surprised by what we shall read there. It is a most valuable and important work, showing an enormous amount of erudition, fine critical acumen, and a rare descriptive talent. It is quite voluminous (more than 600 pp. 8vo.), and some might indeed consider that it could have been more condensed. But it is primarily a book of reference, in whose pages we shall surely not complain of finding a large amount of information, when we refer to it.

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With the book of M. Bernard Pérez, *Le Caractère, de l'enfant à l'homme*, (Character, from Childhood to Manhood), we leave the domain of philosophy and history to enter into that of psychology. M. Pérez modestly disclaims all pretension to founding a science of character. Nevertheless, that which he has given us and produced here, bears the stamp of originality in a subject in which authors have hitherto only repeated one another. His work is composed of two parts, of which the second forms the completion of, or rather a commentary on, the first. We find here, to start with, a classification of characters, illustrated by portraits which render the developments more tangible; secondly, a study on the common combinations of the principle traits of personality.

The classification of M. Pérez is founded on movements, that is to say it is displayed in sufficiently complete groups connected with some distinct mode of expression, such as rapidity, slowness, and energy of movements. It offers the practical advantage of substituting for the four or six temperaments of the old schools, which are frequently hard to distinguish, classes more flexible and distinguished by visible gestures which betray, more or less clearly, their physiological foundation. M. Pérez has provisorily established six of these classes. He distinguishes the vivacious, the vivacious-ardent, the ardent, the sluggish, the sluggish-ardent, and lastly the balanced type. The last category is in my judgment a sort of utility-box, apparently designed to receive specimens which we are at a loss where else to put. For one of two things is certainly true,

either this balance is an insignificant trait or it is one that is dominant in the person, and it is absolutely necessary to state which.

Many will undoubtedly question this doctrine that the movements of a person express all his character and that consequently they are competent to reveal it to us. We might maintain, indeed, that if the movements supply us with the labels of each class, it is not always to be distinctly seen how the different traits of character and of intelligence (the author does not separate the two, and gives his reasons for so doing) subordinate themselves to one another and vary with the motor sign chosen to express them. There can be no question, however, that rapidity, energy, or slowness of movement, do not have certain actual and profound connections with our visceral and cerebral functions, and that the motor sign is easy to be made use of, although it does not reach all the facts which it is employed to describe, and although the explanation of these facts still remains to be sought in the physiological substratum.

M. Pérez has secondly attempted a systematisation of character-traits, by successively studying the relations of gaiety and sadness, irascibility and gentleness, courage and fear, kindness and malevolence, self-love and will, with the principal emotional intellectual and volitional traits of character. He has perceived, instinctively as it were, that the pointing out of generic, specific, and individual marks does not possess its entire worth except on the condition that we also point out *the subordination* of the same, and he has given this factor much prominence in the last chapters of his book. This portion of the work is replete with subtle observations, and ingenious and profound reflections, but it is fragmentary in character, a half-way production, I might say, between the disconnected literature of the moralist and a reasoned and methodical description such as ethology ought to furnish later on, after the manner, if possible, of the natural sciences.

The desiderata which I here briefly refer to, are not set forth to diminish the value of the work of M. Pérez. It will in its present form render great services, and I should not be at all surprised if the terminology which he has invented should pass into the language of the day, as it is convenient and easily lends itself to the

description of character-portraits. Even readers who shall find here much to criticise, will not refuse to accord to it real and solid merit.

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After the work of M. Pérez, a study of my own naturally ranges itself—*La Psychologie du peintre**—concerning which I ask permission to offer a few remarks. I have set myself the problem, in this work, of determining a professional type, and I have chosen one of those which are certainly the most distinctly defined. If other authors could give us the psychology of the musician, of the lawyer, of the physician, and of the geometer, such a task would not be an indifferent performance in what concerns our knowledge of *character*; and we should arrive at the construction of a natural history of society from a different point of view and by different methods from those at the disposal of the novelist. We should accomplish, unquestionably, the passage from general and *abstract* psychology, to *concrete* psychology.

Do professional types really exist? and if they exist, what are they composed of? The question as I view it, is not bereft of interest for the psychologist. We do, no doubt, find among painters, vivacious, sluggish, and ardent individuals, and we may indeed, in studying this or that particular painter, discover in him some one or other of the combinations described by M. Pérez. But that does not stand in the way of the growth and constitution of social types, and individuals may find a natural place in the different categories of a general classification without ceasing to belong to their professional category in consequence of a natural self-grouping of their intellectual faculties, and a definite tendency of the traits of their emotional nature. It would be justifiable to say, at the same time simplifying and enlarging a little the facts, that originally our viscera form our character but our cerebral organism forms our profession; and if it is true furthermore that a certain physiological state brings with it a definite intellectual mode of operation, it is none the less true that the same culture of the mind and the long-continued habits of a profession are apt to impose upon one's personality a definite

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*All the works so far mentioned are published by F. Alcan.

discipline and mean equilibrium of tendencies and sentiments ; and it is in this sense that it has seemed to me we are at liberty to speak of a professional type without equivocation or violence.

Those who will not accept this manner of looking at this subject will find, I hope, some additional interest in my work on the score of the special questions which are treated of there : the heredity of genius, memory, the classification of the sentiments (implied rather than formulated), the relations of the will to the design considered as writing, the evolution of art in its connection with visual analysis, and so forth. There is here a sufficiently abundant supply of materials capable of being wrought up in social psychology and the criticism of art. But it does not become me to bestow praises on my own work, and it would be too easy for me to subject it to criticism. My readers will find in it themselves the weak portions, without my pointing them out to them ; and it would be a source of great pleasure to me to have the same assurance that they will discover in it qualities which I do not perceive there.

* * *

There remains still to be mentioned *La Première partie d'une étude sur la théorie du droit musulman*,* by Savvas Pacha, one time governor and governor general, one time minister of public works and foreign secretary of Turkey. Savvas Pacha—a Christian of Greek descent—has held high positions in the Ottoman Empire and is esteemed as one of the most learned men in Islamic law who have ever lived. His book therefore demands the greatest consideration ; it will not possess less interest for philosophers than for statesmen and jurists. In my opinion, works of this class should be consulted by psychologists as much as by sociologists ; we are too much inclined nowadays to neglect certain social studies which offer us valuable information respecting the genius of races and the conditions of their moral existence.

The work of Savvas Pacha will undoubtedly contribute much toward the elucidation of some mooted points of very first importance; I should like to mention—the history of creation, and the ex-

*Published by Marchal et Billard, Paris.

position of the principles of a law which rules more than a million human beings and is intimately interwoven with their political life; a more exact knowledge of the Semitic genius; an estimate of the relations which have existed between the juridical metaphysics of the Semitic peoples and that of the schools of Greece, between the Mohammedan law and the Roman law in provinces once Romanised but afterwards subjected to the empire of the Caliphs.

It does not seem at all doubtful that the ontology of Aristotle in particular has exercised an influence on the philosophy of the Arabian jurisconsults. A second truly remarkable fact, too, is not the new ontology which they have produced, but the use they have made of it in their legislative fabrics. It is impossible to enter into details here; I limit myself to the mere pointing out of the facts.

With respect to the originality of the institutions that belong to the period of the first Abbassids, the same has been contested by a number of historians. M. Renan, among others has maintained that they are the work of the Iranian genius. Savvas Pacha refutes this opinion in a peremptory manner, and we shall no longer be able to deny, after having read him, that the Mohammedan civilisation, with the *corpus juris* which stands for its most perfect production, has really proceeded from the genius of the races that bore the banner of Islam from the confines of China to the Straits of Gibraltar.

Shall I add that we may deduce from this work, so learned and so suggestive, the elements of an instructive comparison between two grand divisions of human history whose evolution seems still to be pursued on lines wholly apart—that which we call Christianity and that which has sprung from the teachings of Mohammed?

I fervently hope that Savvas Pacha will not delay the publication of the other works which he has promised. When they appear he will have furnished us with the most considerable work which we possess on the institutions of a great division of humanity, still too little known to us.

Lucien Arréat.

II.

GERMANY.

Productions of a literary-historical character are under certain circumstances also entitled to mention in a philosophical magazine, especially if they present to us the intellectual development and physiognomy of an individual or of a community in a scientific manner, as is done in the *Essays* of KARL WEIGAND which have just been published by Merhoff, of Munich. Of the larger essays contained in this book we will especially mention those on Voltaire, Rousseau, Baudelaire, and Taine, to which in psychological respects a high value is to be accorded, and which although not exactly easy are nevertheless pleasant reading.

Viewed from this standpoint the *History of North American Literature* by KARL KNORTZ (Berlin, 1891, Lustenöder) hardly admits of consideration; not even Edgar Allen Poe, who in the psychological point of view is of unexceptionally great importance, is in any respect profoundly treated. The work is made up of a series of well written articles which first no doubt were published in newspapers and magazines for the public at large. We deem it proper, however, to mention the work in this place, because it contains a chapter on the philosophical literature of North America, in which, we must admit, philosophy does not appear to the best advantage. The representatives of philosophy in North America, the author says, are in the main doctors of divinity and securely installed university professors, and this department of study has therefore no dangerous connections; the gentlemen calmly wend their way along the ancient and well-trodden path of the aprioristic philosophers and proscribe without any ado all modern innovations, Darwinism in particular. "As they have not as yet consigned the belief in God and immortality and the freedom of the will to the lumber-room of traditional opinions, and as they are as a rule only superficially acquainted with the results of the exact sciences, despite the fact that many assure us of the contrary, they accordingly fancy that they are easily able

to solve the imagined chief problem of philosophy, the reconciliation of religion and science."

This judgment may contain much that is true, but from the little that we personally know of things in North America, is to be decidedly restricted. Moreover, we by no means share the low opinion which the author entertains of all attempts to reconcile religion and science. Religion is a phenomenon of too great antiquity and its influence in the life of nations is too thoroughly established to entitle us, on the ground of science with which it is still involved in violent conflict, summarily to disregard it; and consequently every attempt at reconciliation is worthy of the best efforts of the noblest. It is of course a question whether we shall ever arrive at the point where we will completely understand *all* religious things, but we certainly must with time arrive at a point where religion shall no longer contain inconsistencies, contain nothing, that is, of which the absurdities are patent.

There was indeed, in Germany also, a time when the belief was very widely spread that religion as compared with science might be ignored completely; it was the time when Ludwig Büchner and Karl Vogt were so much read, when the magazine *Gartenlaube* counted its greatest number of readers. But this time is long since past, and just as since that time employment with philosophy, especially with ethics, has become more comprehensive, so also the interest in religio-philosophical questions, which aim at a reconcilement of the two hostile powers, has been considerably augmented. Aside from the German productions which have been written in a conciliatory tone, like the book, to give an example, of Moriz Carrière on Christianity and the Modern World Conception, foreign works of this same class have also been much read, particularly Drummond's *Natural Law in the Spiritual World*, to which indeed in our judgment no particular value is attributable, as it does not help us to any real knowledge but contents itself with analogies which scientifically are absolutely worthless.

Recently the little treatise *Ernste Gedanken* of the Saxon officer Von Egidy (Leipsic, 1891, Wilh. Wigand) has been much talked about. The reformatory effect of this brochure has, indeed, hith-

erto been very slight and will hardly become more extensive in the future, but the response that it has met with in the widest circles of the German public, proves that many ardent friends of religion anxiously desire that the dogmatic shackles and integuments shall be stripped from the body of the Christian beliefs, and that it shall appear, in the clearest and purest light, that which it is, the religion of love.

Theological criticism has not taken an exactly favorable attitude towards the little book of Lieut. Egidy, and even the liberals, who pay the fullest credit to the good intentions of the author call attention to the fact that the greater part of what Egidy advances has been said before and said better, and that there is an almost absolute lack of positive proposals to be adopted. The Egidy movement will thus probably have, they conclude, no lasting effects.

We cannot indeed absolutely say that these critics are wrong, if we are at all conversant with the development of protestant theology. A very instructive and opportune work in this respect is a book of the well-known Berlin professor Otto Pfleiderer, who, as his religio-philosophical treatises evidence, himself belongs to the reconcilers of Christianity and the modern world-conceptions. In the year 1889, at the instigation of the editor of the Library of Philosophy issued by Swan, Sonnenschein, & Co. of London, he published in the English language a work on *The Development of Protestant Theology since Kant and in Great Britain since 1825*, and this same work has now just appeared in German (published by Mohr of Freiburg) in a somewhat more extended form. As its title proclaims, and as its belonging to the Library of Philosophy would signify, the work is chiefly concerned with the influence which philosophy has exercised on theological thought. To make this influence plain, the author presents at the start, in the form of an introduction, a concise but extremely lucid exposition of the philosophical doctrines that especially demand consideration in this direction. Of German philosophers, Kant, Fichte, Schelling, and Hegel, and of English, Herbert Spencer are treated of at length.

In view of the great respect which Hegel still enjoys in America, it will perhaps interest many of the readers of *The Monist* if I

give here an utterance of Pfleiderer, which in the point of view of the history of religion is also deserving of consideration, at least on the part of those who are recognised adherents of evolutionism.

"No other branch of inquiry," says Pfleiderer, "owes so much to Hegel as History; the arbitrary construction of details from the philosophical concept which had crept in by Hegel and his immediate followers, has of course been discarded by exact historical inquirers, but there has remained that profounder conception of historical life generally as a development of the common mind of all ages and nations, conformable to law, dominated by ideas, and aiming at necessary general purposes; there has remained that profounder insight into the intricate play of phenomena, into the kernel of things and men, into the dominating ideas that lie as guiding impulses at the foundation of even the apparent disharmony of individual passions; there has remained that unprepossessed understanding for the necessity of even the contrarieties and struggles, for the errors and passions of men, for conflict is the father of all things. as Hegel says with Heraclitus, and as it is only through the struggle of partial rights and one-sided truths that the whole truth of the idea can force its way into existence; there has remained finally that intelligent respect for the heroic figures of history in which the genius of a people and of an age have been incarnated, which as the instruments of a higher power have awakened the thought that slumbered in all souls, given it clear expression, and infused in it life by their mighty deeds. Neither a Leopold Ranke, nor a Thomas Carlyle, nor a Ferdinand Christian Bauer would be conceivable without Hegel's philosophy of history."

Pfleiderer expresses himself here very cautiously concerning Hegel, and in other passages his caution is extended further still. Nevertheless, it will seem to many as if that philosopher has been too highly estimated by Pfleiderer. Especially will the followers of Herbart be dissatisfied, who was involved in violent combat with Schelling and Hegel. It is not the place here to enter minutely into this subject; but it is to be mentioned that the name of Herbart does not occur once in this large book. Perhaps Pfleiderer is of Edward Zeller's opinion who says in his "History of Modern Phi-

losophy," that the philosophy of Herbart has proved itself unfruitful. It must be confessed, indeed, that the philosophy of Hegel has proved itself for religious doctrine very fruitful; but whether we should be satisfied with its results is quite a different question. Be that however as it may; still, after Schoel has presented Herbart's ideas concerning religion in a special work, since men like Drobisch, Thilo, and Strumpell have further elaborated these ideas; since particularly Ziller in his Ethics has also profoundly treated religious problems in the sense of Herbart, it is no longer allowable to omit the name of Herbart when we treat of the modern philosophy of religion.

In other respects also we are not always in full accord with the author. So, for example, in Hausrath's *Neutestamentliche Zeitgeschichte*, a work to which we ourselves are very much indebted, the perfection of the form of the presentment is justly praised, as is also the merit of having inserted into the greater setting of universal history the development of early Christianity; but it is not mentioned that Hausrath has often allowed himself to be misguided into combinations whose flimsiness cannot escape the notice even of the lay student.

But these are only slight deficiencies of a work that is otherwise excellent and full of matter, closing with the words: "This much is certain, that the labors of the best and wisest of all the theologians of our century, who have here been passed in review before the eyes of the reader, however different the paths may be which individually they have entered upon, have yet been all directed to the one end that Christianity shall strip itself of its dogmatic coverings and fetters and evince its world-conquering power in the ethical idealism of a love that unites us with God and joins together the hands of humanity into the federation of brotherhood."

If this aim were universal, that is if it were also recognised by the theologians, a not inconsiderable portion of the dispute between religion and science would be done away with, and the sole question would then turn on the contrariety of theological and philosophical ethics. But even respecting this point a settlement would be much sooner brought about, if those concerned would evince the same

spirit of reconciliation as HANS GALLWITZ, city pastor of Sigmaringen, has recently done in his book *Das Problem der Ethik in der Gegenwart* (Göttingen, 1891, Vandenhoeck and Ruprecht). The author, it is true, deals critically not only with the philosophical ethics of a Paulsen and a Wundt, but also with the theological ethics of a Hermann and a Kaftan; still the settlement of things with the philosophers forms the bulk of this rather extensive work, the contents of which we cannot of course give here. Gallwitz also speaks in considerable detail of Kant, whom he opposes in respect of the psychological questions here involved, wholly rejecting anything like a transcendental will. If we must agree with him in this respect, we can nevertheless not follow him in his assumption of a special ethical constitution of the soul.

In conclusion let me note the titles of two works to which I shall revert in a subsequent letter. On *The Psychology in Kant's Ethics* Dr. ALFRED HEGLER of Tübingen presents a meritorious and compendious treatise of 300 pages (Freiburg, 1891, Mohr), and Professor HOSTINSKY of Prague publishes an exposition and interpretation, based on the sources, of *Herbart's Æsthetics*, in which, as is well known, ethics and æsthetics in the restricted sense are wholly severed from psychology.

CHR. UFER.

CRITICISMS AND DISCUSSIONS.

THOUGHT AND LANGUAGE.

To the Editor of The Monist:

SIR—I am glad to hear that Prof. Max Müller intends to answer our double-barrelled criticism of his article on the above subject. Meanwhile, however, I should like to say a few words with regard to the point which he selects for immediate response (see *The Monist*, Jan. 1892, p. 286). And my object in saying these few words is to remove from his mind the idea that with regard to the point in question I had the smallest intention of bringing against him "a serious charge of want of accuracy, unpardonable in a scholar." On the contrary, as regards this point I was simply defending myself from *his* charge against *me*—to wit, the charge of arrogance.

In his article on "Thought and Language" he observed, "Professor Romanes has no right to speak of men like Noiré, Huxley, Herbert Spencer, to say nothing of Hobbes, with an air of superiority." In answer to this charge I stated the bare facts of the case,—viz. that in my book I had alluded to Noiré merely for the sake of stating his theory as to the origin of speech, and of expressing my large measure of agreement therewith; that I had quoted Huxley only in places where my argument needed authoritative opinions on matters of comparative anatomy; that I had only once mentioned Hobbes, and then in order to back by his authority a philosophical doctrine for which I was contending; and, lastly, that I had never mentioned Herbert Spencer at all. Now, if my critic feels that a mere statement of these facts amounts to a serious charge against him as a scholar, I can only express my regret that he should have imposed on me the necessity of stating them.

But what now is his reply to this simple statement of facts? Briefly, he drops his own "serious charge" as regards Noiré, Huxley, and Hobbes, and takes his stand upon the case of Herbert Spencer. "It is true," he says, "Mr. Spencer's name does not occur in the index. But on p. 230 we read: 'So here again we meet with additional proof, were any required, of the folly of regarding the copula as an essential ingredient of a proposition.' Now it is well known that it is Herbert Spencer who regards the copula as an essential ingredient of a proposition." As if it

were one man alone who takes this view, and that man Herbert Spencer! Or as if Herbert Spencer's name were so specially identified with it, that in calling it a philosophically foolish view I expected my readers to understand a disrespectful allusion to him! Surely my critic knows as well as I do that this question touching the function of the copula is one which has been debated for centuries; and therefore that with much more show of reason he might accuse me of making an attack on the President of the United States, on the ground that I had expressed a decided opinion in favor of free trade.

But more than this. So far is it from being "well known that it is Herbert Spencer who regards the copula as an essential ingredient of a proposition," that I am under the necessity of asking Prof. Max Müller for references in proof of such a statement. Chapters X and XI of the "Principles of Psychology" (Vol. II) are those which, as far as I am aware, most nearly approach the subject. Yet the word "copula" does not once occur in them. Moreover, with all that Mr. Spencer has there said upon the nature and structure of propositions I am, and always have been, in full agreement.

Yours faithfully,

Oxford, Feb. 12. GEORGE J. ROMANES.

A DEFENSE OF LITTRÉ.

To the Editor of The Monist.

IF all the readers of *The Monist* for October were acquainted with the life and writings of Littré I should not have to defend him against your criticism, as everyone could see that there is more truth than poetry in my sonnet. But I fear that "the voice, the spirit, and the soul of Positivism" is not so well known as he deserves to be, and I venture to ask for space to reply.

Proceeding in order, I should like to correct the impression left by the following passage: "Comte had not nominated a successor who should in his place be the *Directeur du positivisme*. Littré had forfeited this honor on account of his quarrels with Comte in which he strongly sided with Madame Comte against her husband." The misunderstanding between the two men had a more serious origin than these family squabbles and arose from the fact that Littré would not follow Comte through the mystic vagaries of the *Politique Positive*. He admits that being under his intellectual ascendency he went too far on the new way, but he soon found that the master was violating his own method and, having to choose between them, he held to the method. Littré's refusal to join Comte in his adhesion to the régime of the coup d'état of 1851 was the immediate cause of the rupture. His "excessive tolerance" did not extend to the Bonapartes, whom he detested cordially. It is characteristic of the man that he continued his yearly subscription to the fund that he had created for his friend's support notwithstanding this break in their relations.

As to his tolerance, I think with you that he carried it a little too far in his own family. Greater firmness might have spared us the vision of priests bedeviling him in his agony and dragging his body in triumph to holy ground. But the case that you take as an example does not seem to me conclusive. It was not necessary to possess his knowledge of history in order to appreciate the difficulties attendant upon interference with his catholic wife in the education of their daughter, and as success was impossible he wisely limited his endeavor to fields unobstructed by the "eternal feminine."

Seriously, we admit that Littré was tolerant to excess, but not that the attitude of his philosophy is, as you say, "mere scepticism leading to indifferentism." In the words of M. Wyrouboff, who aided him for many years in editing the magazine called *La Philosophie Positive*, "men, no matter how superior they may be, are never abstract formulas interpreting with equal facility all the parts of a mental conception; they always represent a mixture of strength and weakness in variable proportions. . . . It seemed as if intellectual activity had absorbed all the living forces of his (Littré's) being, leaving in the place of physical activity only the faculty of passive resistance to the will of others." This refers to the man in his old age but in youth he was an athlete of remarkable strength. Renan said of him: "While his temperament was calm his mind was revolutionary, and therefore he never gave way. In July 1830, he was in the first line of those who broke into the place du Carrousel and George Farcy was shot through by his side." I am tempted to quote a little more from this master of words. "So great was his love of truth that, perhaps alone in our century, he could retract without lessening himself. Truth led him like a child. . . . It is not well to be too perfect. . . . His apparent negations were only the extreme reserve of a mind that dreads hazardous appreciations. He was so much afraid of going beyond what he saw clearly that he often stopped short of it. Hesitation that implies a thousand times more delicate worship of the eternal ideal than the rash solutions that satisfy superficial minds."

Even in old age there were no signs of "indifferentism" in his conduct. In the words of Pasteur, "At the Mesnil he was consulting physician for the whole village (always gratuitously). Continuing his labors till three o'clock in the morning, the light of his lamp shone afar during the night like a beacon that reassured the sick. It was known that at the first call, M. Littré would leave his work and go wherever his aid was needed."

These are the words of men that knew him, but my first-hand opinion of him was formed solely from his writings and his public acts as senator, etc.; fancy such a man in *our* senate!

The note in which you say that I attended positivistic lectures (Comte's?) in France together with Mr. Frederic Harrison is a flattering anachronism.

Littré's father received a sword of honor while in the navy for beating off an English ship of superior force, and the son's philosophy prompts not only to action but to action, if necessary, in the good old fashioned positive way.

My second objection refers to the line where you say that your positivism "has nothing to do with Comte or with any of Comte's disciples," and, leaving Comte aside, I hope to show that you and Littré are much better friends than you imagine. A view noted by him on p. 27, Vol. 1, of his magazine, *La Philosophie Positive*, ought to assure this happy result.

In the preface of your valuable work entitled "Fundamental Problems" you draw particular attention to the part that treats of "Form and Formal Thought," which, you say, discusses a subject of fundamental importance. "A correct conception of form and the laws of form will clear away many mysteries; it will afford a satisfactory explanation of causality and shed a new light on all the other problems of philosophy."

The part referred to begins thus: "In the introduction to his 'Critique of Pure Reason,' Immanuel Kant proposes the question: How are synthetical Judgments *a priori* possible? on the solution of this problem the whole structure of his philosophy rests, which he characterises as *Transcendental Idealism*." ("A priori, as used in the limited sense by Kant, is purely formal knowledge, while a posteriori is identical with experience.")

Further on I read, "Our own views grew out of a study of Kant's Transcendentalism"; and the first words of your "Conclusion" are these: "Although Kant's Transcendental Idealism cannot be considered as a final solution of the basic problem of philosophy, it nevertheless pursues the right method and has thus actually led us to a solution which, we hope, will in time be recognised as final."

In looking for the difference between the two solutions to find the part in yours that belongs to you alone, I see on p. 50 of "Fundamental Problems" that "Kant thinks it is a strange and wonderful fact that our formal thought (the rules of arithmetic, mathematics, logic, etc., which are *a priori*) agrees so precisely with the highest (i. e. the most general) laws of nature, which can be ascertained and verified by experience. Kant sees only two ways of solution. Either the laws of pure reason, he says, have been gathered by experience from nature, or, on the contrary, the laws of nature have been deduced from our *a priori* rules. The former solution is impossible, since the formal sciences are proven to have been formulated with the exclusion of all sensory experience. 'Therefore,' says Kant, 'the second solution only remains. Reason dictates its laws to nature'; i. e. . . . the sensory impressions are the raw material only from which the well-ordered whole of nature, as an object of science, is created by the synthetic faculty of reason. . . . Kant has taken into consideration two ways only. He overlooks the third and most obvious explanation. . . . The third possibility is that which has been propounded in the foregoing pages. According to our explanation, the formal (the highest or most general) laws of nature and the formal laws of thought are identical. Their agreement is not wonderful but inevitable as both are expressions of the forms of existence in general."

This then is your "solution of the basic problem of philosophy."

Turning back to page 34, I find under the title "The Origin of the A Priori": "Kant answers the question 'How are synthetic judgments *a priori* possible?' by showing that such synthetic judgments undoubtedly exist." "He might have ventured a step further by proposing another question: 'What is the origin of the *a priori*?' Only by answering this question could he have shown *how* synthetic judgments *a priori* are possible. This he did not do, and the omission has produced great confusion among German, French, and English thinkers." On the next page, 36, I find "According to our view, form is a property of reality as well as of our cognition. Formless matter does not exist. Form and matter as they exist in reality, are inseparable. . . . Knowledge also in its primitive shape, when it is, so to say, natural and crude, is an intimate combination of sense-perceptions and formal cognition. The sense-perceptions are the real substance of knowledge, while formal cognition is the principle which arranges and systematises sense-experiences." . . . "Logic does not create order and system in our brain, but it makes us conscious of the order that naturally grew in our mind."

In the division entitled "The Order of Nature" you say that "Formal thought represents the mere laws of thought in their abstractness, and has been acquired by abstraction. The mere forms of thought exhibit a wonderful regularity. . . . This regularity of formal thought, which is expressed in all logical laws, arithmetical calculations, and in all mathematical conceptions, has naturally grown in our mind as the psychical expression of a physical regularity in the arrangement of the various brain-structures and their combinations. The arrangement of brain-structures in certain regular forms has been effected in accordance with the same laws that govern the development of forms generally."

This answer to the question, "What is the origin of the *a priori*" is what you call the corner-stone of your positivism, which, you say, "it is to be hoped, will prove the only true Monism."

Now I give my translation of Littré's view, which he published in 1867, in an article entitled "The Three Philosophies."

"The effective certainty that the mathematical laws of number, of figure and of motion are at the base of physical phenomena, and the inductive belief that they are equally at the base of chemical and of biological phenomena induce me to note here a view upon the relation that must be found between subjective phenomena and objective phenomena, that is to say upon the relation that causes the subject to draw from the object a science and laws. The nervous substance, which is the organ of all intelligence, is made up of material elements which arrive with their conditions; and when this substance becomes capable of thinking, it passes under the conditions proper to the elements that form it; which results in (*se traduit par*) a science and its laws. The material work that takes place in the brain while it fulfils its office, is, as is known, a work of nutrition, which consists of a chemical exchange of molecules. Every chemical action is, in turn, equivalent to a certain quantity of heat; and again, this heat is equivalent to a certain quantity of motion.

Thus thought, no matter how we represent to ourselves the relation to nervous substance, is connected with mathematical modes of which it becomes conscious when it becomes luminous. Not that I would in any way have it understood that thought is but an equivalent of heat or of motion. Far from that, equivalence is not identity; and whenever we change from one degree to another in the natural and scientific order we meet a new unknown which is the characteristic of this degree. The induction that leads us to connect thought with mathematical conditions, leads us also to connect it with physical, chemical, and biological conditions, of which it is necessarily participant. Finally, when, at the highest point, it arrives face to face with itself, it studies itself experimentally like the rest, and forms its own doctrine. If it attempts to go out metaphysically into space, it is reduced to combining subjectively its own elements, turns in a circle without issue and falls back upon itself. If, on the contrary, it makes the same attempt towards nature from which it emanates, then the ways open, science is established, and positive philosophy appears. The material constitution of the nervous substance is the point of junction between the human mind and laws or general facts. If I had been younger, I should have made a work of this view, not a paragraph; but old age must hasten."

I have translated more than was necessary so as to give the "view" as a whole. Does it not contain the answer to your question, "What is the origin of the *a priori*"?

Though Littré solved your "basic problem of philosophy" he did not attach so much importance to this solution as you do because his philosophy is based upon a generalisation from all facts and not upon any one fact, however important it may be.

"Positive Philosophy is the conception of the world that results from the systematised ensemble of the positive sciences" and does not depend upon the solution of any psychological problem, although it recognises the importance of all psychological facts.

Your originality lies in your application of Littré's discovery.

The reader has his choice between Littré's positivism and your neo-Kantism, but if he side with you he must at least thank Littré for the solution on which your philosophy is based.

You say that "Comtean Positivism, especially as it is represented by Littré, consists mainly if not exclusively of the doctrine to 'let metaphysics alone.'" Is this fair to the man that solved your "basic problem of philosophy" in a paragraph?

Positivism as represented by Littré gives due importance to the subjective element. He recognised that three essentials were necessary to the completion of Comte's philosophy; a political economy, a cerebral theory, and what, for want of a better name he termed the subjective theory of humanity. This last comprised ethics, æsthetics, and psychology. Speaking of a confusion that obscures the whole discussion relative to psychology, he says: "*Cerebral theory*, *mental* or *psychological theory* are taken in two very different senses, which are never distinguished. These terms signify sometimes the organic conditions under which intelligence manifests itself, sometimes the formal conditions under which the intellect operates.

As soon as these two significations are separated we perceive the means of settling the debate as to the place of psychology; for to the question: Where should these two orders be studied? it will be answered that the first should be studied in anatomy, physiology, zoölogy, the evolution of ages, pathology, it belongs therefore without contest to biology; but it will be answered that the second should be studied in the total development of history and in the application to all the modes of cognition; it belongs incontestably to philosophy. Thus there are two psychologies, one biological, the other philosophical, one relating to the individual man, the other to the collective man, one furnishing what is necessary in order to pass from biology to sociology, the other examining the subjective instrument by the light of all positive knowledge. But this complement of philosophy I do not call psychology, I call it the *subject-theory* of *humanity;* because while including psychology, it includes much more." That is to say; ethics and æsthetics. . . . "In the order of the positive method it is at first by means of the object that human knowledge is built up, and we end with the subject." "The theory of the subject is the indispensable complement of the theory of the object."

Of positive philosophy Littré says: "While it constructs the series of the partial philosophies and thus embraces all objective knowledge, it constructs at the same time the series of effective methods and thus embraces all logical power. I borrow this expression from M. Comte, who so happily named these effective methods the logical powers of the human mind. When it has terminated its first series it is found to have also terminated the second. Thus the ensemble of the methods represents the function of the subject; the ensemble of the partial philosophies, the function of the object."

Is this what you call a "one-sided philosophy"?

You say that Littré is the worst kind of a metaphysician because he maintains that we can know nothing about first and final causes; I quote him to show his position: "Positive philosophy is at the same time a system that comprises all that is known of the world, of man and of society, and a general method including all the ways by which things have been learned. What is beyond, either, materially, the depths (fond) of boundless space, or, intellectually, the endless enchainment of causes, is absolutely inaccessible to the human mind. But inaccessible does not mean null or non-existent. Immensity, both material and intellectual, holds by a narrow tie to what we know and becomes by this alliance a positive idea of the same order; I mean to say that by touching and bordering it, this immensity appears in its double character, reality and inaccessibility. It is an ocean that washes our shore, and for which we have neither bark nor sail, but whose clear vision is as salutary as it is formidable." *Aug. Comte et la Phil. Pos.*, 2d Ed., p. 519.

As Littré had found this shore encumbered with the wrecks of expeditions that had started out in search of first causes and final causes, it is no wonder that he was a little timid. His metaphor needs explanation in the light of other passages, otherwise it might seem to discourage pursuit of the unknown. He did not

discountenance hypotheses but he was very much afraid of our inclination to take guesses for truth; and this, by the way, is the reason why he is not appreciated in this country, where we are so fond of guessing. What he really did was to discourage those navigators who would go in search of the Jumping-off-place, for the best that can befall them is to come back to where they started. The men that know the earth is round are the only men that find new worlds.

In answer to your statement that Littré's philosophy "is an inventory rather than a plan to guide science in its further evolution" I will only repeat in his words, what he has shown so well, that "positive philosophy is the ensemble of human knowledge, disposed according to a certain order which enables us to grasp its connections and its unity, and to draw from it the general directions for each part and for the whole."

You say that "Littré rejects the evolution theory and its attempts to explain ethics." I quote him from *La Philosophie Positive*, March, 1880: "Positive philosophy does not deny the evolution of ethics; far from doing so, it maintained and inculcated this evolution long before the utilitarian doctrine made it its ethical pivot." . . . . "General morality, born of the gradual culture of the sentimental basis of the human soul under the social protection of progressive centres, is entirely disinterested, and this is what makes its purity and its force."

In your philosophy you have a god and a religion, in his we have the same things, but as they are so different from what is generally understood by these terms, we use others. Here are some of the *Paroles de Philosophie Positive:* "In the eyes of history, there are no false religions, there are only incomplete religions which make their way through time and perfect themselves. . . . The definition of religion is taken from its office, which is: to put education, and consequently moral life, en rapport with the conception of the world at each phase of humanity. Whoever examines this definition will find that it satisfies all the conditions of religion, either in the past, the present, or the future. It will be perceived that theology is not inherent in the religious idea. It was not always there in the past; for we cannot give the name of theology to primordial fetichism, which addressed its worship to neighboring objects, nor to the religions that adore natural agents, such as air, wind, night, dawn; it is with polytheism that theology begins. As for the future, general science, conceiving the world differently from the way in which it was conceived during the reigns of the successive religions, takes an office equivalent to the religious office, and must in its turn place education and moral life in accord with the universe as it appears to us." . . . . "We do not outrage the old doctrine, whose past is glorious and venerable; but there is a public for which it is a dead letter; and it is to this public that we address ourselves and for this public that we labor."

Is this not aspiration to be in unison with "the order of the world," which you call God? And when Littré traces this aspiration back to its organic origin is he not explaining what you affirm?

Our philosophies are not perfect, but we must apply them, such as they are, to the needs of the day. The most pressing of all these needs, in my opinion, is unity of action among those who are animated with the new spirit.

Let us pull together.

Very truly yours,

LOUIS BELROSE, JR.

ÉMILE LITTRÉ'S POSITIVISM.

AN editor cannot make it a rule to accept criticisms of considerable length which have reference to a remark incidentally made in a book review. The present case, however, although it belongs in this category, is of a peculiar nature. First, the remark on Littré was made by the editor himself, and accordingly he feels personally responsible for it; secondly, it contains a brief delineation of Littré's character as a man and as a philosopher in the way in which he is usually regarded by the most prominent historians of philosophy. Mr. Belrose presents Littré in quite a new light and quotes passages in corroboration of his conception of Littré which are perhaps not generally known, for they are buried in articles of the positivistic journal *La Philosophie Positive*, and this journal enjoyed neither a long life nor a large circulation; nor is it to be had in any of the libraries accessible to me. Seventeen editorial articles were republished in bookform, (*La Science. Au point de vue philosophique, par* É. LITTRÉ. Paris, 1873), but the article "The Three Philosophies" is not among them.

If Mr. Belrose's conception of Littré proves to be true, I shall not only gladly correct my own wrong view of Littré, but I wish also to call attention to the fact that he has been misrepresented by almost all and certainly by the best and most painstaking philosophical historians.

I cannot however in the main points accede to Mr. Belrose's view and will have to sustain my former opinion that M. Littré was an agnostic. He made it a matter of principle to suspend his opinion on some of the most fundamental philosophical problems, which he considered as inaccessible. His positivism, accordingly, differs *toto cælo* from the positivism presented in *The Monist*. His philosophy, like that of Comte, is so far as I understand it, a policy of let-metaphysics-alone. It gives up the struggle with metaphysics as a hopeless undertaking. Therefore, I should say, Littré's positivism has not conquered metaphysics, and although it lets metaphysics alone, metaphysics plays an important part in it. Littré is an agnostic and like every agnostic that believes in the unknowable, a metaphysician without knowing it.

The doctrine of the three stages of knowledge, viz., the theological, metaphysical, and positive stages, appears to me of less importance. The doctrine of the three stages is at the same time not properly a Comtean idea; Comte adopted it from Turgot, the great statesman and one of the greatest men as a thinker and also as a character that ever lived and who is too little appreciated as such.

The main doctrine of Comte's positivism is the doctrine that first and final causes cannot be known, and we must abandon our search for them; that human knowledge is limited to the middle, while the two ends are inaccessible. These insoluble questions, he declares, have made no progress from the beginning. Mr. Lewes in his book "Comte's Philosophy of the Sciences" expresses this agnosticism in the following words (p. 31): "Our province is to study her [nature's] laws, to trace her processes, and, thankful that we can so far penetrate the divine significance of the universe, be content—as Locke wisely and modestly says—to sit down in quiet ignorance of all *transcendent** subjects."

This idea has so far as I am aware never been given up by Littré; it remained the basis of his belief in the unknowable and his works abound in expressions that concerning the main problems of life, "the positive philosophy will neither assert nor deny anything."

Littré concludes the last article of his volume "La Science" with the following words:

"Le domaine ultérieur est celui des choses qui ne peuvent pas être connues. La science positive professe de n'y rien nier, de n'y rien affirmer; en un mot, elle ne connaît pas l'inconnaissable, mais elle en constate l'existence. Là est la philosophie suprême; aller plus loin est chimérique, aller moin loin est déserter notre destinée."

This quotation alone, I think, settles the first main point at issue.

Now I maintain that Comte's view of causation where he refers to first and final causes is fundamentally wrong; causation is transformation and causality is the formula under which we comprehend the changes of matter and energy that take place. The expressions first and final causes are misnomers (see "Fundamental Problems," the chapter The Problem of Causality). First cause is either the starting point of a series of some longer chain of causes and effects, or as the term is generally applied or rather misapplied, stands for the last ground or reason, i. e. the answer given to the ultimate question why?, which is the most general *raison d'être* that would explain and contain all the other and less general *raisons d'être* regarding the nature of existence. The term final cause, again, means either the last cause in a series of causes or (and so it is generally used) it is a misnomer for purpose; and the final cause supposed to be inaccessible to human comprehension is the purpose of the existence of the world at large. I object to there being three kinds of causes. There is one kind of causality only, and the causes of this causality in all the causal processes with which we are confronted are perfectly intelligible.

The problem of the first cause of the origin of our world, viz. the solar system and the milky way, was attacked first by Kant and later by Laplace, and the latter, without knowing of Kant's solution, solved it in the main in the same way. All recent investigations stand upon this Kant-Laplace hypothesis so called, having added corrections only as to details. Shall we declare that these labors are vain

* Italics are not mine.

and gratuitous efforts of vague speculations? Littré says, with reference to such speculations, concerning the past and future states of the world (le monde):

"La dissémination primordiale de la matière qui devait le composer, la dissémination future de la matière qui le compose, dépassant toute expérience, dépassent toute conjecture."

If I misunderstand Littré, it appears to me a pardonable mistake.

Yet is not the problem as to the origin of the world at large, why matter and energy exist at all, insolvable? Littré says that the positive cosmogonies, such as the doctrine of evolution do not touch the absolute; they have nothing to do with first and final causes. He says: "Les cosmogonies positives la [i. e. la place des cosmogonies religieuses] remplissent, non pas qu'elles aient la prétention ni le pouvoir de pénétrer dans l'absolu et d'embrasser les causes premières et finales."—l. c., p. 560.

That kind of causality which is sometimes called "ontological," having reference to the existence, not of single things as transformations from other things, but of the world at large and formulated in such questions as how did the universe itself, the world as a whole, originate, is properly speaking no causality, it is not a question concerning a cause, but concerning a *raison d'être*. However without haggling about the words cause and *raison d'être*, this ontological causality so called is by no means beyond human comprehension. The ontological question has found a very definite answer in the formulation of the law of the conservation of matter and energy; which declares that existence at large did not originate, the total amount of matter as well as of energy existed always and will exist always. It has not been created; it is uncreatable and indestructible; it is eternal.

Littré is quite explicit in declaring that the positive philosophy lets alone all theological and metaphysical problems. It is neither atheistic nor theistic, and does not side with either materialism or spiritualism. He says:

"Ni spiritualiste, ni matérialiste, la philosophie positive écarte de la science générale les débats que la science particulière a depuis long temps et à son grand profit rejetés."—Preface d'un disciple in Comte's "Course de Phil. pos." p. xxvii.

Littré characterises as the main object of the positive philosophy, "to give to philosophy the positive method of the sciences, to the sciences the idea of the unity of philosophy." He says: "Ainsi fut accompli ce qu' on doit appeler l'œuvre philosophique du dix-neuvième siècle, donner à la philosophie la méthode positive des sciences, aux sciences l'idèe d'ensemble de la philosophie." Preface, p. viii.

I am in perfect agreement with Littré that this is the object of positivism; but, if I understand Littré correctly, I disagree from his conception of the positive method. He limits the positive method to what he calls "experience," and excludes every notion of the *a priori*. Littré apparently misunderstood the proper meaning of Kant's idea of the *a priori*, for he used as a matter of course the *a priori* method wherever it was indispensable, so for instance in mathematics and in the application of mathematics.

Mr. Belrose says :

[Littré] "solved your basic problem of philosophy [i. e. what is the origin of the *a priori*] in a paragraph."

The problem of the *a priori* reasoning is the question "Why can we know certain things before we have tested them by experiment? Man has not arrived by experience but by pure reasoning at the conclusion that the sum of the angles of every plane triangle has 180 degrees. How is he justified in declaring *a priori* that the angles of a certain plane triangle make up 180 degrees, although he has not measured them ?" This problem is the fundamental problem of the scientific or positive method ; it is the same problem which Mr. Charles S. Peirce discusses in his article (see pp. 321 et seqq. of the present number of *The Monist*), for the problem of apriority is identical with the question of necessity.

Littré has, so far as I know, never discussed the problem of apriority and necessity. He has simply rejected the idea of the *a priori* as the method of a false metaphysics, which is incompatible with the *a posteriori* method of positive science. The passage quoted by Mr. Belrose most certainly does *not* contain a solution of the problem. Littré declares therein that every chemical action is equivalent to a certain quantity of heat ; and again this heat is equivalent to a certain quantity of motion. Thus, he says, thought is connected with mathematical modes of which it becomes conscious. Thought, he adds, is not an equivalent of heat or motion, for equivalence is not identity, but it is connected with mathematical conditions. This means that that kind of brain-action which represents conscious thought, depends upon definite proportions. But what in all the world has this idea to do with the problem of apriority? The phrase "mathematical modes" (which is misleading in this passage) is an unfortunate expression for "proportions" and we must add that Littré is mistaken when he says that the nervous substance when it becomes luminous, becomes conscious of these mathematical modes with which it is connected. Aside from "luminous" being simply an allegorical expression for conscious, it is wrong to say that the nervous substance becomes conscious of the mathematical modes of heat as they are proportioned in the brain. A sentient being knows through sensation nothing about the mechanism or the mechanical proportions of its own sentient structure. Sensation is the act of a becoming conscious not of the sentient structure itself but of the meaning which this sentient structure has acquired, and a consciousness of the mathematical modes which according to Comte's hierarchy of the sciences ought to be the beginning of knowledge develops at a very late period. Any explanation of the origin of *a priori*, be it ever so brief, would lead us too far away from the points of our controversy. It is sufficient here to point out that the passage quoted by Mr. Belrose, contains no solution of the the problem of our knowledge and certitude of mathematical, arithmetical, and other purely formal laws. On the contrary, this very passage is replete with error ; it is a misstatement of facts and does not even bring to light the difficulties of the problem.

Littré was prejudiced against the *a priori*, and his prejudice induced him to underrate its importance. I read in one of Littré's passages quoted by Mr. Belrose:

"If it [thought] attempts to go out metaphysically into space, it is reduced to combining subjectively its own elements, turns in a circle without issue and falls back upon itself."

The *a priori* method of thought subjectively combining its own elements, is by no means a turning in a circle without issue so that in the end it will fall back upon itself. The *a priori* method of thought subjectively combining its own elements is employed by arithmetic, mathematics, and logic, and we are confronted with the astonishing fact that rules, or formulas, or calculations which were made by pure thought subjectively combining its own elements, are applicable and hold good as reliable guides in our experiments. If there were no *a priori*, how could we foretell or, what is more still, how could we predetermine the course of nature? The *a priori* has been wrongly employed by the so-called metaphysical philosophers to give us information about the substance and essence of the world. But the misapplication of the *a priori* is no reason for denouncing it as radically wrong.

The existence of the *a priori* is an undeniable fact. Kant was right in recognising it in its sweeping importance, yet he was wrong in his interpretation of the *a priori*, which according to his transcendentalism was based exclusively upon a peculiarity of the mind and not upon the nature of things. The positivists in France did not only object to the wrong interpretation of the transcendentalists but also denied the existence of the *a priori*. Accepting the principle that every knowledge must ultimately be a statement of facts, the question How is the *a priori* to be based upon facts? became in my conception of philosophy the burning problem which was next in order as a conciliation between Kant and Comte.

The French positivists, foremost among them Comte and Littré, have not given us an explanation of what is true and false in the theological and metaphysical notions of first and final causes, of the *a priori*, of God, of substance, of force, etc.; they have simply abandoned the investigation of these ideas which are after all the most important tools in the household of the human mind for scientific and ethical purposes; and thus they have, in spite of their positivism in questions of detail, retained the metaphysical method of *a priori* reasoning which is quite legitimate in the formal science but out of place concerning facts. Take for instance the following argument concerning the materiality of things:

"Là, c'est à dire dans les sciences positives, on ne connaît aucune propriété sans matière, non point parce que, *a priori*, on y a l'idée préconçue qu'il n'existe aucune substance spirituelle indépendante, mais parce que, *a posteriori*, on n'a jamais rencontré la gravitation sans corps pesant, la chaleur sans corps chaud, l'électricité sans corps électrique, l'affinité sans substances de combinaison, la vie, la sensibilité, la pensée, sans être vivant, sentant et pensant."—*La Science*, p. 307.

I do not mean to say that there are immaterial or spiritual substances, but I should say that any purely *a posteriori* argument in favor of their non-existence is

insufficient. Would Littré mean that a Zulu should declare that ice cannot exist because he has never seen water frozen as hard as a stone? Any amount of experience, i. e. all *a posteriori* evidence, is in parts and will out of itself never acquire universal validity.

How strongly Littré is still implicated in the metaphysical method of applying *a priori* ideas to *a posteriori* experiences can be learned from the following statement:

"Le monde est constitué par la matière et par les forces de la matière: la matière dont l'origine et l'essence nous sont inaccessible; les forces qui sont immanentes à la matière. Au delà de ces deux termes, matière et force, la science positive ne connaît rien." Preface, p. ix.

The metaphysical ideas, matter and force, are *a priori* notions of mystical entities or things in themselves, and thus it appears natural that experience should know nothing of them. But real matter and actual force are not unknowable existences. They can be known. We know something of them and positive science is engaged in broadening and deepening this knowledge. Says Littré:

"Les propriétés physiques sont manifestes en toute substance, dans quelque état qu'elle soit, isolée ou non isolée, et s'exercent sur les masses; les propriétés, n'apparaissent qu'entre deux substances, ont besoin de la binarité et s'exercent sur les molécules; enfin les propriétés vitales dépassant la binarité, ne sont compatibles qu'avec un état moléculaire plus composé." Preface, p. x.

One of the fundamental principles of positivism, as I conceive it, is the definition of knowledge as a description of facts or of their properties. We call certain properties of the facts (i. e. the objects of our experience) matter and others force. When we say that we do or do not know a certain phenomenon we mean that we have or have not as yet succeeded in placing them properly in that system of thought-symbols of which our mind consists. Yet there is no sense in speaking of matter and force as being unknowable while the properties of matter and force are said to be manifest and appearing under certain conditions.

I have presented the main reasons why I still hold that there is a radical difference between Littré's view of positivism and my own. Littré is an agnostic and he was an agnostic before that name had been invented. His objection to metaphysicism consists in the doctrine not that the object of metaphysics is a chimerical non-existence, but that the object of metaphysics exists yet it cannot be known. Thus Littré is as much a metaphysician as those philosophers whom he censures for their metaphysical views. He does not censure them for believing that the metaphysical exists, but for believing that it is knowable and attempting to investigate its nature.

As to the hierarchy of the sciences I shall simply quote a few extracts from Eugen Dühring's criticism of Comte. Dühring says (*Krit. Gesch. der Phil.*, p. 486):

"If Comte's *positivism* were nothing more than what we have here laid down, its main contents would, strange enough, consist in *negativity*. The criticism of a certain kind of metaphysics, viz. of an ontology phantastical to a greater or lesser

extent, would form its most significant character. The other element which consists in presenting a hierarchy and unitary conjunction of some of the sciences which are called positive in the usual sense of the term, cannot pretend to be philosophy in the higher sense of the word or even to be useful for science. A general view of knowledge, whether it consists of six or sixty volumes, does not add the least iota to the contents of our knowledge. . . . We cannot expect that a specialist should be pleased with a hierarchical sketch of his science, especially if the delineations are filled out with details of which he would be a better judge."

It is true, and I concur in this with the French positivists, that a positive philosophy must be a systematic arrangement of knowledge. But I conceive it to be the philosopher's work, not to take an inventory of the sciences, but to define the fundamental concepts of scientific enquiry and to elucidate the methods of cognition. Such fundamental concepts are the ideas, truth and criterion of truth, cause and effect, mind, thought, knowledge, ethics, etc. Concepts are the tools of thought and the practice of using them correctly has to be learned.

Positivism is not the original invention of a world-system, but the systematising of statements of facts so as to produce a world-system. The old philosophers gave us first a world-system, from which and in accord with which they defined their views of truth, cognition, cause, etc. They began to build their philosophy from the top down. Positivism begins from the bottom and is building up to the top with the assistance of the special sciences. A positive philosophy is inseparable from, but it cannot be replaced by, the sciences. The field of philosophy is to superintend the method and the plan of building, so as to compare the details and bear in mind the unity of the whole. In this sense Dühring says in criticising Comte (p. 486):

"However, concerning the form of the connections of methodical reflections, something can be done. Yet it must be possible to separate everything of such a kind and also new insights, so as to constitute a special branch of knowledge. Otherwise they will escape the specialists' attention. . . . Not only Comte but all philosophers given to the idea of systematisation and construction of particular knowledge have made attempts in this direction which at most may range as sketches or popular presentations in a higher sense."

Concerning Littré's view of Comte's religious vagaries Dühring says (p. 483):

"His [Comte's] biographer, the Academician Littré of Paris, and also Stuart Mill are right in considering 'The Course of Positive Philosophy' as the main and fundamental work which is decisive as a contribution of his and a source of instruction to the world. However, they are very one-sided when they overlook that the philosopher even in his vagaries exhibited a universality of mind which remains superior to the standpoint of either Littré or Mill."

I agree with Mr. Belrose that Comte's religion as he conceived it consists of vagaries, but the main idea of developing the religions of the past which, as Littré says, are not false but only incomplete religions, into a religion that shall be in accord with the science of our day is no vagary, but a great and an important ideal.

Far be it from me to belittle Littré because I disagree from him in some fundamental questions. He was in his time, he is still, and will remain for ever a star of first magnitude in our philosophical galaxy. That which I consider as his errors does not detract from his greatness. Were not Kant's mistakes in a similar way closely interwoven with his greatest merits? It is flattering to me that Mr. Belrose finds an agreement between his master's and my views concerning the basic problem of philosophy, but I cannot discover it. Yet I gladly acknowledge that there exists an agreement of aim, and this agreement of aim which finds its truest expression in the word "positivistic" is perhaps of greater importance than the agreement of views. P. C.

OBSERVATIONS ON SOME POINTS IN JAMES'S PSYCHOLOGY.*

In calling attention to some objections to the views advanced by Professor James on the subjects of Belief, Emotion, and Will, it is only justice to myself to express the admiration I feel for his work as a whole. The thoroughly scientific spirit which pervades it, the author's candor in admitting and his skill in surmounting difficulties, his learning and his originality, his aptness in illustration, and the energy and vivacity of his style combine to make it full of interest as well as instruction. It is because it should be, and doubtless will be widely influential, that it is important that any doubtful positions assumed in it should be subjected to a careful examination.

I shall endeavor to avoid any misrepresentation of the views which I combat, but space will not allow me to do full justice to the arguments by which they are supported, if such a thing is possible for an antagonist. For this, I must refer the interested reader to the original book. If what I have to say should have the effect of increasing the number of its readers, I shall not have written altogether in vain, whether I succeed or fail in setting the truth in a clearer light.

I. BELIEF.

Professor James entitles the chapter devoted to this subject "The Perception of Reality," and defines belief to be "the mental state or function of cognising reality." He explains that, "As used in the following pages, 'Belief' will mean every degree of assurance, including the highest possible certainty and conviction" (Vol. II, p. 283).

According to this definition, erroneous beliefs, such, for instance, as the belief that the earth is flat, stationary, and the centre of the universe, or the delusion of an insane man that he is Jesus Christ, are cognitions of reality. Professor James would probably say that they are realities to the mind entertaining them, and it is true that the feeling of belief is the same, whether the thing believed be true or

* *The Principles of Psychology*, by William James, Professor of Psychology in Harvard University. In two volumes. New York: Henry Holt & Company, 1890.

false. I think, however, that it is more customary to use the verb which he employs in connection with beliefs which agree with the objective facts, and that the "feeling" or "sense" of reality would be a better term than "perception" or "cognition."

This, however, is not, to my mind, the most serious objection to the definition. Although Professor James does not use the word "knowledge" in this connection, it seems evident, from the passage quoted above, and from what he says elsewhere, that he considers all kinds, as well as all degrees of certainty to be beliefs. It seems to me evident, on the other hand, that many of our cognitions of reality are not properly called beliefs. As an instance, I will quote the illustration with which he opens the discussion of "The Various Orders of Reality" (p. 287).

"Suppose a new-born mind, entirely blank and waiting for experience to begin. Suppose that it begins in the form of a visual impression (whether faint or vivid is immaterial) of a lighted candle against a dark background, and nothing else, so that whilst this image lasts it constitutes the entire universe to the mind in question. Suppose, moreover (to simplify the hypothesis), that the candle is only imaginary, and that no 'original' of it is recognised by us psychologists outside. Will this hallucinatory candle be believed in, will it have a real existence for the mind?

"What possible sense (for that mind) would a suspicion have that the candle is not real? What would doubt or disbelief of it imply? When *we*, the onlooking psychologists, say the candle is unreal, we mean something quite definite, viz. that there is a world known to *us* which *is* real, and to which we perceive that the candle does not belong; it belongs exclusively to that individual mind, has no status anywhere else, etc. It exists, to be sure, in a fashion, for it forms the content of that mind's hallucination; but the hallucination itself, though unquestionably it is a sort of existing fact, has no knowledge of *other* facts; and since those *other* facts are the realities *par excellence* for us, and the only things we believe in, the candle is simply outside of our reality and belief altogether.

"By the hypothesis, however, the mind which sees the candle can spin no such considerations as these about it, for of other facts, actual or possible, it has no inkling whatever. That candle is its all, its absolute. Its entire faculty of attention is absorbed by it. It *is*, it is *that;* it is *there;* no other possible candle, or quality of this candle, no other possible place, or possible object in the place, no alternative, in short, suggests itself as even conceivable; so how can the mind help believing the candle real? The supposition that it might possibly not do so is, under the supposed conditions, unintelligible."

I readily grant that it is, under the supposed circumstances, unintelligible that the candle should be thought to be unreal, but it seems to me equally so that it should be believed to be real. What does Professor James mean by a belief in the reality of the candle under such conditions? Nothing more than that the mind is conscious of a sensation which we know, but it does not, is like that produced by the sight of a candle. This sensation is certainly a reality, and the only possible reality to that mind. Professor James must, then, be understood as maintaining that a sensation, pure and simple, is a belief in an object exciting the sensation. If, for instance, the first consciousness of the supposed mind were the odor of a

rose, or the whistle of a locomotive, he must admit that the mind would believe in the rose or the locomotive. If I have a headache, or am hungry or tired, I not only have beliefs about these sensations, but the headache, the hunger, the weariness, are themselves beliefs. Now I submit that this is contrary to all ordinary use of language. It is, perhaps, impossible for an adult, with his mind full of memories of past experiences, to have a sensation without some sort of a belief about it, but although the sensation and the belief may be inseparable, they are not indistinguishable, and, as a matter of fact, every one does distinguish between his sensations and his beliefs about them. I do not think it would be quite correct to say even of an adult who had never seen or heard of a candle, that, on seeing one for the first time, he would believe in the reality of the candle, although doubtless he would believe he saw something real—a real flame, for instance.

If it be admitted that sensations are entitled to be called beliefs, it seems impossible to stop short of the conclusion that all states of consciousness are beliefs. Emotions and volitions are as much realities as sensations, and are known as such by the mind that experiences them. That memory and imagination involve belief, is too evident to need discussion. But if this be the case, the chapter on belief could have been very greatly abbreviated—need not in fact, contain more than four words. To say that all consciousness is belief would perhaps simplify matters, but it would not advance our knowledge very much, nor would it accord with the ordinary use of the word, which has reference to a particular kind of consciousness, which every one knows, however hard he may find its definition.

It seems to me, therefore, that Professor James's definition of belief is defective in two ways. There are beliefs which are not cognitions of reality, and there are cognitions of reality which are not beliefs. Especially in regard to the latter class, I think that the definition confuses a distinction that is real and important, between different kinds of knowledge. We know our sensations, emotions and volitions in a way which differs not only in degree but in kind from any usual, or, I think, legitimate sense of the word "Belief."

Perhaps it would be the safer course to rest content with pointing out the objections to the author's definition without laying myself open to retaliation by attempting one of my own, but it does not seem to me impossible to give one which will include all that is understood by the term and nothing more. I should say that belief is the sense or feeling of relation between mental objects. That we have belief whenever we have this feeling, seems to me too plain to require argument, and I am unable, after a good deal of reflection, to call to mind any belief that is not included in the definition. If I see, or imagine that I see a lighted candle, it may excite in my mind a great variety of beliefs, as, that the flame is hot, that the light and heat are caused by the chemical union of oxygen with carbon and hydrogen, that the material of which the candle is composed is wax, paraffine or tallow, that it has a cotton wick, that it is of a certain size, weight, and color, and so on indefinitely. All of these are evidently ideas of relation. To say "flame," or "hot"

does not express a belief, unless something else is understood, but to say "flame is hot" does so. If I say that the color red is equal to the square of the hypothenuse of a right-angled triangle, I fail to express a belief because the mind perceives no relation between the objects, and the answer to such a statement would be, not that it is or is not true, but that it has no meaning. The only cases which occur to me in which it might be plausibly argued that a belief did not involve the feeling of relation are such impersonal expressions as "it rains," or, "it is cold." The exception, however, is only apparent, arising from the erroneous idea that everything which is implied in language must be expressed. When we say, "it rains," we mean, "rain is falling." In either form of language, the thought conveyed is that of the relation of the drops of water and their motion. The stock-broker, with his pre-arranged code, may communicate the ideas of a long sentence in a single word, or the Freemason may do the same to the initiated by a gesture. In such a case, it would be absurd to contend that no relation is felt or communicated because there is no formal subject or predicate.

Whatever may be thought of the sufficiency of my definition, I risk the assertion that it includes all beliefs that can be affirmed, denied or doubted. We never question our sensations, emotions or volitions—we have them, are aware of them, and that is the end of the matter. It is the relations of our sensations to each other, and to our pleasures and pains, our choices and rejections, that involve us in all sorts of perplexities. The whole question of the grounds of belief in general, and the truth or falsehood of particular beliefs is a question of relations. It is, then, in the sense indicated above that I shall use the word hereafter.

Having settled the definition, it may be worth while to consider for a moment whether this feeling of relation, which can only be known by experience, is enough like any other mental states to be classed with them. On this point Professor James says: "*In its inner nature, belief, or the sense of reality, is a sort of feeling more allied to the emotions than to anything else.* Mr. Bagehot distinctly calls it the "emotion" of conviction. I just now spoke of it as acquiescence. It resembles more than anything else what in the psychology of volition we know as consent. Consent is recognised by all to be a manifestation of our active nature. It would naturally be described by such terms as 'willingness' or the 'turning of our disposition.' What characterises both consent and belief is the cessation of theoretic agitation through the advent of an idea which is inwardly stable, and fills the mind solidly to the exclusion of contradictory ideas. When this is the case, motor effects are apt to follow. Hence the states of consent and belief, characterised by repose on the purely intellectual side, are both intimately connected with subsequent practical activity. This inward stability of the mind's content is as characteristic of disbelief as of belief. But we shall presently see that we never disbelieve anything except for the reason that we believe something else that contradicts the first thing. Disbelief is thus an incidental complication to belief, and need not be considered by itself." (P. 283).

I am unable to satisfy myself whether, in the above passage, Professor James has in mind the feeling of belief or other feelings which often accompany it. The "cessation of theoretic agitation," "willingness," "turning of our disposition," are accompanied by feelings which I should say are not only like, but identical with emotion. In the case of old, confirmed beliefs, however, theoretic agitation ceased, and the turning of the disposition occurred, if at all, long ago, and I am unable to recognise anything resembling emotion in my belief that two and two make four, that cows eat grass, that iron is a metal, and many others that might be mentioned. Nor do these beliefs, at the present time, give rise to motor effects, which, so far as I am able to see, only result from such beliefs as are, directly or indirectly, associated with emotion. If such beliefs as I have mentioned are not purely intellectual, as distinguished from emotional phenomena, I should be at a loss to know where the distinction is to be made between "the head" and "the heart." The sense of relation seems to me to be the most purely intellectual of all the mental functions, and, although it may give rise to all sorts of emotions, the more settled, undisturbed and unquestioning the belief, the less likely is it to give rise to any but the feeling of calm, which seems to me to be the antithesis of emotion. I should say that belief is a feeling *sui generis*, without enough analogy with any other to justify classing them together.

I have already quoted the illustration with which Professor James opens the discussion of the subject of Reality. After quoting from Spinoza, to the same effect, the supposed case of a horse with wings imagined to be real in the absence of any contradictory thought, he goes on to say: "The sense that anything we think of is unreal can only come, then, when that thing is contradicted by some other thing of which we think. *Any object which remains uncontradicted is ipso facto believed and posited as absolute reality.*" (P. 288). Elsewhere he says:

"*. . . all propositions, whether attributive or existential, are believed through the very fact of being conceived, unless they clash with other propositions believed at the same time, by affirming that their terms are the same as the terms of those other propositions.*" (P. 290).

This, I think, is stated too strongly, at least, in the latter quotation. A proposition that is uncontradicted will be believed, but it is not necessary that the contradictory proposition should be believed in order that the first may fail of belief. I believe nothing, at present, contradictory of the proposition that it is now raining in Boston. I think it not improbable that such may be the case, but at the same time the contrary proposition is present to my mind, that it may not be raining in Boston, and the result is the state of mind which Professor James very properly regards as the opposite of belief—doubt. But supposing that a proposition is presented to the mind, which, being for the time uncontradicted, is believed, and that subsequently another, contrary proposition is presented, is it certain that the latter will be disbelieved? May not a state of doubt replace belief in this case also? Or supposing that two propositions, which have been believed independently, are

brought into juxtaposition in such a way as to show that they are inconsistent, how are we to determine which if either, shall be believed? Professor James seems to teach that it is a matter of choice.

"That we can at any moment think of the same thing which at any former moment we thought of is the ultimate law of our intellectual constitution. But when we now think of it incompatibly with our other ways of thinking of it, then we must choose which way to stand by, for we cannot continue to think of it in two contradictory ways at once. *The whole distinction of real and unreal, the whole psychology of belief, disbelief and doubt, is thus grounded on two mental facts—first, that we are liable to think differently of the same; and second, that when we have done so, we can choose which way of thinking to adhere to and which to disregard.** The subjects adhered to become real subjects, the attributes adhered to real attributes, the existence adhered to real existence; while the subjects disregarded become imaginary subjects, the attributes disregarded erroneous attributes, and the existence disregarded an existence in no man's land, in the limbo 'where footless fancies dwell.'" (P. 290).

The doctrine that belief is, in the last analysis, a matter of choice is a prominent feature of Professor James's teaching, to which I shall have occasion to refer again. It seems to me to involve him in some inconsistencies. For the present, it should be noted that he admits the reality of every mental object in its proper relations.

"If I merely dream of a horse with wings, my horse interferes with nothing else and has not to be contradicted. That horse, its wings, and its place are all equally real. That horse exists no otherwise than as winged, and is moreover really there, for that place exists no otherwise than as the place of that horse, and claims as yet no connection with the other places of the world. But if with this horse I make an inroad into the *world otherwise known*, and say, for example, 'That is my old mare Maggie, having grown a pair of wings where she stands in her stall,' the whole case is altered; for now the horse and place are identified with a horse and place otherwise known, and *what* is known of the latter objects is incompatible with what is perceived of the former. 'Maggie in her stall with wings! Never!' The wings are unreal, then, visionary. I have dreamed a lie about Maggie in her stall." (P. 289).

Here, the dream is a reality, and the winged horse is as really a part of it as the mare Maggie is of the outside world. The reality of the winged horse in the one case, and his unreality in the other, depend on his relations to other mental objects. So, for instance, if any one should say that a mermaid was a creature with the portion of a man from the waist up united to the body and limbs of a horse, I should be justified in contradicting him, and saying that it was not a mermaid but a centaur that he had in mind. It would not be a valid answer to say that there were really no such things as mermaids and centaurs. In mythology, a centaur has as definite a structure as a giraffe has in zoölogy, and it is as inexcusable to confound the one as the other with anything else. This point is amplified by the au-

* The italics, in this and my other quotations, are the author's.

thor in a section on "The Many Worlds," in which the various objects of thought are found in their proper relations, and out of which each one selects a world of practical realities, according to his dominant habits of attention. *In the relative sense*, in which we contrast reality with unreality, or consider one object more real than another,

"*Reality means simply relation to our emotional and active life* . . . in this sense, whatever excites and stimulates our interest is real." (P. 295).

"*Whatever things have intimate and continuous connection with my life are things of whose reality I cannot doubt.*" (P. 298).

This power of exciting and stimulating our interest, Professor James finds to be possessed in a pre-eminent degree by sensations, which thus become, directly or indirectly, our tests of reality, and among which those which are pleasurable or painful hold the first rank. Next to them, if not of equal power, are emotions.

"The greatest proof that a man is *sui compos* is his ability to suspend belief in the presence of an emotionally exciting idea. To give this power is the highest result of education. In untutored minds the power does not exist. Every exciting thought in the natural man carries credence with it. To conceive with passion is *eo ipso* to affirm." (P. 308).

Professor James's account of the grounds of belief seems to me inadequate in that it fails to show the connection between our sensations and emotions and other mental states and our beliefs. Why is it that the sight of the heavenly bodies, for instance, awakens in different minds such diverse beliefs as the Ptolemaic and the Copernican systems of astronomy? What does a man who is frightened believe? What belief would necessarily result from a colic? It is not enough to say that sensations and emotions are connected with belief; we want to know how they are connected.

Bearing in mind the definition of belief as the sense of relation between objects, the question resolves itself into the origin of feelings of relation. As relations are of various kinds, they may be suggested to the mind by different circumstances. They may, I think, be divided into three classes:

1) Relations of likeness and unlikeness. These result from the comparison and discrimination of objects. All the beliefs involved in the recognition and classification of objects arise in this way. When, on seeing a certain object, I say that it is a bay horse, and will weigh about eleven hundred pounds, I give expression to relations of comparison. The comparison may be immediate, between objects simultaneously present to the senses, or alike present only to memory or imagination, or between a present object and a remembered one, or mediate, by comparison of two or more objects with some other. All mathematical truths are of this kind.

2) Relations of cause and effect, of substance and quality, of whole and component parts, of order in time and space, are due to association. When I say of the horse that his movements are caused by muscular contractions, that he is of a

gentle disposition, that he has a bony skeleton and red blood, that he is five years old and is harnessed to a carriage, I express relations of association. In his chapter on Association Professor James says:

"*Belief* in anything *not* present to sense is the very lively, strong, and steadfast association of the image of that thing with some present sensation, so that as long as the sensation persists the image cannot be excluded from the mind." (Vol. I, p. 598).

I do not think it is a fact that the image of the thing believed in need be associated with any present sensation. I am not aware, for instance, that there is, at present, any such association in my belief in the existence of the city of Constantinople, or that Queen Victoria is reigning in England. The associations in these and similar cases are with objects of memory and not with present sensations. On the other hand, what we mean by belief in a present object always involves memory of the past. When we say that we believe in anything, we either mean that it is like other things of the same sort of which we have had experience, or that it stands in some other relation to them. Complete loss of memory would not only destroy all our past beliefs, but, if it were permanent, would prevent our ever forming any new ones. The universe, in such a case, would be a mere chaos of sensations.

In order that things may be associated, they must first be discriminated, otherwise, as Professor James has shown, in his chapter on Discrimination and Comparison, they are thought of, not as associated things, but as one thing. In like manner, when discriminated things have once been associated, the tendency is, in the absence of contrary experience, to think of them as belonging together. A child, attracted by the brightness of the teapot, touches it and burns his fingers. He naturally expects the teapot to be hot the next time he sees it. He is told that his Christmas gifts were brought down the chimney by Santa Claus. Until the statement is contradicted, he believes it. Why should he not? Or the association of things in the mind may come about without any external suggestion. I remember that the first time that I ever heard a person snore, the thought came into my mind that the strange noise was made by a bear, and I lay awake most of the night, in fear of being devoured. The tendency is to think of things as related in the way in which they are first presented to the mind, until they come up in some different relation. This seems to be the explanation of the tendency to "believe as much as we can," to "affirm immediately the reality of all that is conceived," of which Professor James speaks. With increased experience, we find that there is a difference in the uniformity of associations, and accordingly the coincidence of two or more things is associated with the doubt whether or not the association is a constant one.

3) In addition to the relations considered above, there are some which, although expressed in terms of association and comparison, seem to me to have a different origin. That the whole is greater than any of its parts is a relation of comparison; that a thing cannot be in two different places at the same time, that every event

has a cause, that there is an external world, are relations of association. Although they do not arise independently of experience, they contain more than is given in experience, and the uniformity and firmness with which they are believed can, it seems to me, only be accounted for by the assumption of an innate propensity to look upon things as related in these ways.

So far as I am able to judge, beliefs always arise in one or another of these three ways. But a still more interesting question, from the practical point of view, than that of the origin of beliefs, is that of the comparative validity of the various grounds of belief. Are they all of equal worth, and if not, is there any way of determining which are to be given the preference, or is belief, like taste, a matter about which "*non disputandum*"?

Professor James does not go very deeply into the discussion of this question. As we have seen, he assigns to sensation the greatest efficacy in producing belief, and discusses the comparative power of various sorts of sensations in this respect. Emotion he makes a close second. But the question which gives us the more reliable information, in cases in which they conflict, he does not discuss at all. As a matter of fact, there is no doubt that a man under the influence of strong emotion often draws different conclusions from the evidence of his senses from those at which he would arrive in its absence. Is he warranted in doing so? Would any degree of personal interest warrant a man in believing or disbelieving the doctrine of transubstantiation, the Newtonian theory of gravitation, the Mosaic or the Darwinian view of the origin of species? There is no doubt that belief on such subjects as these is influenced by our interest, real or supposed, in one or the other view, and perhaps Professor James would say that he deals with the working of minds as they are, not as we imagine that they ought to be, but the general knowledge that a class of considerations is reliable or the reverse is another thing that not only ought to, but actually does affect our beliefs, and the question of the method to be pursued in ascertaining the actual relations of things, of forming true beliefs instead of false ones, is one which hardly ought to be ignored in a discussion of the subject.

Referring to the three classes of relations already considered, it is, I think, evident that there are differences in the way in which they affect our belief. In comparison, the essential thing is the accuracy of the observation. One who has once fully comprehended the proof that the sum of the angles of a triangle is equal to two right angles, is as sure of it as he could be after any amount of experience. In comparing sensible objects, we may, it is true, find our belief confirmed by repetition, but this is only in case that we doubt whether the comparison was rightly made in the first place. That red does not look like blue, nor sweet taste like sour, we are as certain on one trial as a hundred. If we apply a foot measure to an object eight inches long, nothing can add to our certainty that they are not of the same length. In matters of association, on the other hand, a great deal depends on the uniformity of the association—the number of times that we have experienced

it without contrary experience. When I hear a crow, for instance, I believe that it is black, because all the crows that I have ever seen have been so. A sheep I assume to be white, but with a less degree of confidence, because black sheep are more numerous than white crows. In the case of a horse, I have no belief in regard to the color within a certain range, unless I have some means of knowing about the particular animal in question. If I were told that my friend had bought a horse, I should have no idea whether it was bay, or black, or white, or some mixture of these colors. If, however, I were told that the natural color of my friend's horse was green, I should be much more confident that the statement was false than if the same person should tell me he had seen a white crow, for the same reason that I should more readily believe in a black sheep than in the latter. In the customary use of the word, I might say I *knew* it was not so. In the case of intuitive judgments, experience has little or nothing to do with the strength of belief. The adult man is no more firmly convinced of the existence of something external to himself than the child, and, although he may come to doubt it on speculative grounds, he no more fails than the child to show by his actions that he has a practical faith in it.

In many, if not most of our beliefs, all of these elements are present. If I see an orange, for instance, I have the intuition of externality, the comparison with other oranges that I have already seen, and associations of internal structure, taste, smell, and the like. All of these, and very possibly some emotion, as, for instance, a desire to eat it, may arise, simultaneously or so nearly so as not to be distinguished in time, as parts of a single mental state.

There is one kind of association, of importance enough to deserve mention, of which Professor James makes no mention. The beliefs, or alleged beliefs of other people have an influence on our minds which is, I think, not inferior to that of emotion. The man who can, without misgiving, maintain an opinion which contradicts all that he learned in childhood and all that is held by those whose good opinion he most values is, I fancy, quite as rare as he who can suspend judgment in the presence of an emotionally exciting idea. Most of us take our religious, political, scientific, and practical beliefs at second hand, from the friends with whom we associate or the books and papers we read. Take a young man out of his home and put him, for instance, in college, and it will probably work a change in his moral standards, not necessarily for the better. At home, if he knew of a theft, or an assault, he would very probably be ready to bring the offender to justice, but if the offender is his classmate, and the sufferer a member of the succeeding class, he will very probably think it a more shameful thing to report the wrong than to do it. At the same time, he doubtless considers it utterly reprehensible that ignorant Italian peasants should feel in the same way about betraying their neighbors who are guilty of robbery or murder.

Coming now to the influence of emotion on belief, it will not, I presume, be disputed that it comes about by way of association. Professor James, as we have

seen, holds that "every emotionally exciting thought, in the natural man, carries credence with it." I suspect that this is true only in the sense that, in the absence of experience, not only every exciting thought, but every thought is believed. However this may be, in respect to the natural man, I think it is pretty certain that, in the case of such artificial beings as those who reflect on the causes of their emotions and beliefs, it will be found that in order for an idea to excite our emotions, a certain degree of belief is necessary. Professor James illustrates his position by the fact that a man can walk along a curbstone without any apprehension of falling, because the thought of falling awakens no emotion of dread, while on the edge of a precipice the emotion caused by the thought of the consequences of a mis-step may quite overcome his belief in his ability to keep his belance. But a chamois-hunter or an acrobat will pass along the same place without the slightest apprehension, not because he does not think of what would happen if he should fall, nor because he has more liking than any one else for being dashed to pieces, but because he has what the inexperienced man lacks, entire confidence in his ability to avoid the danger.

Since I began writing the last paragraph, a number of thoughts have passed through my mind, any one of which would be sufficiently exciting if I believed in them, as, that I may die within the next half hour; that I may fall heir to a fortune, and the like, none of which have produced any emotional disturbance, because I do not believe that there is any probability of their being true. Why was it that not only the medical profession but the public in general became so much interested, recently, in the announcement that Dr. Koch had discovered a substance that promised to be a cure for tuberculosis? Partly on account of the interests involved, but at least equally because his reputation was such as to inspire confidence in what he said. There are plenty of medicines advertised in the newspapers for which greater claims are made than Dr. Koch made for his discovery, which fail to arouse any such general interest. These examples are probably enough for illustration of the familiar fact that belief is the most common cause of emotion, and that a thought that is not believed is apt to leave us unmoved.

Nevertheless, it is a notorious fact that emotion has a great deal to do with determining the sort and degree of evidence which is satisfactory to us. Love and hate, respect and contempt, affect our beliefs in regard to the character of their objects in matters entirely independent of the qualities which originally inspired the feelings. We find it an easy matter to believe that a man whose religious or political opinions we think pernicious is a bad man in matters which have nothing to do with his opinions, and may find it almost incredible that one whom we like personally should think differently from ourselves on matters in which we are deeply interested. But what particular evil we shall believe of the person whom we dislike, or good of the one whom we like, depends entirely on circumstances. A man, for instance takes a dislike to a stranger on account of some lack of good manners. Whether he shall suspect him of being a clergyman or an infidel, a drinker or a

prohibitionist, a Sunday-school teacher or a gambler, or both, is likely to depend very largely on his own tastes and principles in regard to such matters. So, on the other hand, his views in regard to religion, temperance and gambling, are probably due in great measure to the practice of the people whom he likes. A woman who has been brought up with a horror of drunkenness hears that a man with whom she is violently in love is a drinker. She will probably disbelieve it at first, but if she becomes convinced of the truth of the report, she will very likely come to think that a drunkard need not be such a bad fellow after all. If there is any one thing that more affects our beliefs than what the people we like say, it is what they do.

In like manner, emotional states without any definite object, such as we call moods if they are transient, and disposition or temperament if they are habitual, color our belief, not by originating any definite propositions, but by making us receptive to those that tend to confirm them. It is not when a man is broken in spirit by repeated calamities that he is most ready to believe that "where there's a will there's a way," nor in the flush of youth, health and triumph that the doctrine that "all is vanity," comes home to his heart. In whatever way such states of mind come about, whether as a result of original constitution, or of experience, or of disease, they make the mind inhospitable to whatever does not harmonise with them. In the case of insanity, this disposition may outweigh the plainest evidence of the senses, so that a man may believe that he is rolling in wealth and luxury when he is destitute of the ordinary comforts of life, or that his wife and children are dead when they are present before his eyes. In a lower degree, most of us probably have experience of something of the sort in "fits of the blues," but while the general character of the belief may be decided by the emotional tone of the mind, its precise form is determined by the man's interests. Low spirits would not be likely, for instance, to effect a man's opinion as to the probable course of the stock market, unless he were in some way interested in stocks, and the view favored by his emotional condition would depend on the side of the market on which his interest lay. Beliefs which, in our ordinary state of mind, are not associated with any strong feeling, such as mathematical truths and the physical and chemical laws of matter, remain unaffected in all kinds and degrees of emotional disturbance.

It seems clear, then, that, as a matter of fact, emotions affect our beliefs through association. It is not difficult to see how this comes about. Emotions tend to perpetuate themselves. A man who is in high spirits will laugh at vexations which, if he were in an irritable frame of mind would seem intolerable. We allow liberties to our friends which would offend us in persons to whom we are indifferent. The same inertia of the mind which is shown in these cases offers a resistance to any thought that tends to disturb it. If I like a man and hate dishonesty, evidence that the man is dishonest calls up at the same time two contrary emotional states, which cannot subsist together. One of three things must happen; either the association of the feeling of liking with the person of the man, or of that

of repugnance with dishonesty, or of the quality of dishonesty with the man must be given up, or at least impaired. But the feeling of affection for my friend and that of hatred for the alleged fault are old established associations, while that of dishonesty with his personality is a new one, which, in order to find lodgement, must expel the original inhabitant. Although I may have formed no definite association of honesty with him, the difficulty is of precisely the same sort as if I had. In either case it is the breaking up of an habitual association.

Such being the way in which emotion affects belief, its value as a ground of belief must be determined in the same way as in other cases of association. If any emotion is so exclusively connected with some definite object that the one is never present without the other, we are warranted in inferring the existence of the object from the presence of the emotion, as Robinson Crusoe inferred from the human footprints on the sand that men had been there. As a matter of fact, there is comparatively little uniformity in associations of this kind. The same things affect different persons differently, and the same persons differently at different times. Our hopes and fears are sometimes realised and sometimes disappointed, and people to whom, on slight acquaintance, we feel attracted, often develop qualities of a different kind from what we expected as we come to know them better. If I am fond of money, and also of idleness, or of friendship, and also of having my own way at all times, it does not follow that taking my ease is the way to get rich, nor that always insisting on my own way is the course to make friends. The most, I think, that can be said in favor of emotion as a ground of belief is, that its existence presupposes the existence of some object adapted to excite it. Avarice may be said, in a sense, to prove the existence of wealth—if there were no wealth there would doubtless be no avarice—but not that a particular avaricious man will be wealthy. Fear implies the existence of harm, but not necessarily that harm is coming upon the one that fears. These are matters in which we can apply the test of experience to our beliefs, and it seems evident that emotion adds nothing to our knowledge. We know the things independently of the emotions they excite, and every one recognises that to expect a thing merely because we either desire or fear it is, in matters which we can test by experience, utterly fallacious.

But there are matters lying outside the range of our experience in regard to which it is often confidently asserted that our desires and fears are sufficient proof of their reality—a view in which I cannot agree. If it could be shown that we long for something of an entirely different kind from anything we have known, that might perhaps be an argument in favor of its existence, but such is not the case. The wish for immortality, for instance, is nothing more than the wish for life. Probably there are but few who would not rather have immortality without death than after it, but experience has at last convinced the most hopeful that this is not to be expected, and the search for fountains of youth and elixirs of life has few devotees. We want life, and we have life; we want happiness, and we know happiness, whether we ourselves have it or not, but to say that the fact that we want

more than we get of both is a reason for supposing that we shall ever have all that we want of either is to reason in a way which we should all see to be fallacious if applied to things of every-day life. I conclude, then, that the emotions which a belief excites are utterly valueless as a test of its truth, and that we may expect that, both with individuals and the race, emotion will play a smaller and smaller part in belief as true knowledge and culture increase. This is not saying that, in cases of doubt, it is unreasonable to hope that things may turn out as we wish.

As to innate beliefs, it is enough to say that we cannot altogether rid our minds of them, and that they answer perfectly the purpose of working hypotheses. A man may question the reality of an external world to his heart's content, but if he runs his head against a wall, or drops a brick on his toe, it will hurt him just as much as the most thorough-going materialist. The consequence is that such a doubt does not affect our conduct. Abstractly, these beliefs do not all impress us with the same degree of certainty. That the same thing cannot be in two different places at once, is, I think, felt to be more absolutely and necessarily true than that there is such a necessity in the order of events as is implied in the idea of causation, but for all practical purposes we are as sure of the one as of the other.

I have already quoted Professor James's assertion of our ability to choose which among different ways of thinking of the same we shall adhere to and which disregard. Perhaps the most prominent feature of his teaching on the subject of belief is that it is an active, not a passive state of the mind—a choice, not a necessity. One or two more quotations on this point will make this plain.

"As bare logical thinkers, without emotional reaction, we give reality to whatever objects we think of, for they are really phenomena, or objects of our passing thought, if nothing more. But, *as thinkers with emotional reaction, we give what seems to us a higher degree of reality to whatever things we select and emphasise and turn to* WITH A WILL. These are our *living* realities, and not only these, but all things that are intimately connected with these (p. 297).

"Now the important thing to notice is that the difference between the objects of belief and will is entirely immaterial, as far as the relation of the mind to them goes. All that the mind does is in both cases the same; it looks at the object and consents to its existence, espouses it, says it shall be my reality.' It turns to it, in short, in the interested emotional way" (p. 320).

Although the doctrine is stated, in these and other passages, without qualification, it is hard to reconcile it with some other statements. He devotes a chapter to "Necessary Truths," and says:

"We *must* attach the predicate 'equal' to the subject 'opposite sides of a parallelogram' if we think those terms together at all" (p. 617).

I do not know that it makes much difference whether we say that, in a case like this, we cannot think differently of the same, or that, having thought so, we cannot choose which way of thinking to adhere to and which to disregard. The proposition that a horse is a vertebrate animal cannot be called a necessary, *a priori*

truth, but I find it as impossible to think of a horse that is not a vertebrate animal as of a parallelogram with the opposite sides unequal. A figure with the opposite sides unequal would not be a parallelogram, and anything that was not animal and vertebrate would not be a horse. Whether the difficulty in the two cases is the same or not, it is clear that, by Professor James's admission, here is a restriction of our choice as to what we will believe.

Again, he speaks of pleasurable and painful sensations as "belief-compelling." Compulsion, so far as it exists, excludes choice, and if this expression is justified it implies another limitation on the freedom of belief.

With regard to painful sensations, it seems to me that the fact is that they, and their associations, force themselves on our attention, rather than that we "select, and emphasise and turn to them with a will." If I have a toothache, I may believe that if I retain the tooth it will keep me in pain for a long time, and if I have it extracted, that will also be a painful process. It does not seem to me that the expressions quoted above accurately describe my state of mind in regard to either of these beliefs.

According to Professor James, when a man becomes convinced that he is financially bankrupt, or that he has lost his good name, or that he is suffering from an incurable and fatal disease, it is because he "espouses" this view of the matter, "consents to its existence," says "it shall be my reality." This notwithstanding that such a belief may drive him to determine that, so far as in him lies, all existence, all reality shall cease; to consent to death and espouse the grave. Would not the criminal who hears his death-sentence pronounced prefer, if he could, to disbelieve his eyes and ears, and to feel that it was all a bad dream? So far as I can judge with regard to many unwelcome beliefs, they are not like the highwayman who offers the alternative of "your money or your life," but like him who throws you down, binds and robs you without offering any choice.

Perhaps the most striking example of the view under consideration is found in a foot-note on p. 318, in which, after quoting, with approval, a statement of Royce that "The ultimate motive with men of every-day life is the will to have an external world," he goes on to say:

"This immixture of the will appears most flagrantly in the fact that although external matter is doubted often enough, minds external to our own are never doubted. We need them too much, are too intensely social to dispense with them. Semblances of matter may suffice to react upon, but not semblances of communing souls. A psychic solipsism is too hideous a mockery of our wants, and, so far as I know, has never been seriously entertained."

Leaving aside the question whether any one who really disbelieved that there was any reality, outside of his own mind, in objects of sense, could believe in the existence of that which he only infers from the conduct of those objects, it seems to be distinctly stated that the reason of these beliefs is, not that we cannot help believing so, but that we choose to believe so, and not otherwise, and that we are

able, having so chosen, to believe as we wish. That there may be no doubt as to the sense in which the term "Will" is used, I will quote the explanation with which he opens his chapter on that subject :

"We desire to feel, to have, to do, all sorts of things which at the moment are not felt, had, or done. If with the desire there goes a sense that attainment is not possible, we simply *wish;* but if we believe that the end is in our power, we *will* that the desired feeling, having or doing shall be real ; and real it presently becomes, either immediately upon the willing or after certain preliminaries have been fulfilled" (p. 486),

Now each one must judge for himself whether this, or anything like this is the way in which he came to believe in an external world. Judging from my own experience, I should say that the reason we originally have such a belief is that it arises spontaneously in our minds, and that, for a long time, it never occurs to us that it can be otherwise. However that may be, I am certain that when the contrary possibility was presented to my mind, it struck me as strange, rather than dreadful, and that I firmly believe many things that seem to me far more hideous than the doctrine that I am the universe. So far as society is concerned, if I can *be* Shakespeare and Milton and Goethe, Plato and Bacon, Newton and Darwin, Luther and Columbus and Washington, as well as all the people of my acquaintance, it strikes me that I can be pretty good company for myself. To use the universality of the belief as a proof of its voluntary nature seems to me very much such an argument as to say that because all bodies attract each other in the ratio of their mass and inversely as the square of the distance, the falling of a stone must be a purely voluntary matter. I do not see what stronger argument, in a case like this, could be made for the necessity of a belief than the alleged fact that no one, under any circumstances, is free from it.

Now, if we substitute the term "Propensity" for "Will" in the passage quoted above, it would seem to me an entirely accurate description of the facts, and I can only understand how the authors quoted could take the ground they do except on the assumption that all propensities, or at least all which prevail, are choices or volitions. That such is not the case seems to me clear enough in regard to belief from some of the instances which I have already mentioned, but it will perhaps be still more evident from cases in which belief is not in question. The propensity to remember and constantly think of painful and distressing things, which we would gladly banish from our thoughts, or such things as silly rhymes and trifling tunes ; to tremble and lose our presence of mind in danger, when we have most need of the full use of all our faculties ; to express our emotions by muscular movements when we wish to conceal them, and many others that might be mentioned, are examples of the fact that an invincible propensity may be quite the reverse of a choice.

That belief is an activity of the mind may be freely admitted. The mind—whatever the substratum of our states of consciousness may be—is not a receptacle,

to hold indifferently whatever may be poured into it nor a sheet of blank paper, on which this or that may be written by circumstances; it has a character of its own, and reacts to its environment. What the reaction shall be depends both on the character of the mind and what is presented to it, but it seems incorrect to assume that all the dispositions of the mind are of the nature of desires or aversions. In the last analysis of which we are capable, our character is probably due to our physical constitution, original and acquired, and our beliefs may be profoundly affected by a few glasses of whiskey or an attack of fever. Whether the reactions of the matter of which our brains are formed are as invariable as those of inorganic matter need not be discussed here; the present point is that while belief is a sense of the relations of things as they are, the essence of will is the desire to have them otherwise than as they are. To make belief a matter of choice is the same as to say that I may at the same time choose that things shall be as they are and otherwise.

Professor James closes the chapter with a practical observation:

"If belief consists in an emotional reaction of the entire man on an object, how *can* we believe at will? We cannot control our emotions. Truly enough, a man cannot believe at will abruptly. Nature sometimes, and indeed not very infrequently, produces instantaneous conversions for us. She suddenly puts us in an active connection with objects to which she had till then left us cold. 'I realise for the first time,' we then say, 'what that means!' This happens often with moral propositions. We have often heard them; but now they shoot into our lives; they move us; we feel their living force. Such instantaneous beliefs are truly enough not to be achieved by will. But *gradually* our will can lead us to the same results by a very simple method; *we need only in cold blood act as if the thing in question were real, and keep acting as if it were real, and it will infallibly end by growing into such a connection with our life that it will become real.* It will become so knit with habit and emotion that our interests in it will be those which characterise belief. Those to whom God and Duty are now mere names can make them much more than that, if they make a little sacrifice to them every day. But all this is so well known in moral and religious education that I need say no more" (p. 321).

The above passage seems to me to illustrate at the same time the force of Professor James's rhetoric and an occasional tendency on his part to be carried away by it into statements that are altogether too sweeping. In an immense proportion of cases, the method that he recommends is precisely the surest way to convince ourselves that the thing in question is *not* real. It is the method which the small boy takes to convince himself that the gun is not loaded; the drunkard and spendthrift to satisfy themselves that their vices will not bring them into poverty and disgrace. A man may sit all day at the fork of the road, and believe that the broad way does not lead to destruction, but when he puts his belief in practice he discovers the truth. So far as practical matters, capable of being brought to the test of experience, are concerned, it can only be said that *if they are real*, we shall convince ourselves that such is the case by acting as if they were real. Doubtless Professor James had not such prosaic things as these in mind when he wrote the pas-

sage, but a method that will not serve us in regard to such questions as whether water will wet us or fire burn us, can hardly be called infallible. But even in regard to questions that must always remain matters of opinion it is not true in the unqualified sense in which Professor James puts it. Probably many men, brought up in the belief that it was their duty to observe the first day of the week by religious worship because the Hebrews were required to abstain from labor on the seventh day, have come to modify their belief without any material change in their practice, and even the belief in regard to the nature and attributes of God may be affected in advance of a change in the conduct based upon it.

The law of association in this regard is subject to the same limitations as we have already found to hold in respect to other matters. Associations of action with belief have a tendency to strengthen it, but, as in the case of emotion, they may be overcome by other considerations, and it is entirely possible for a man to go on for the better part of a lifetime in punctilious conformity to usages which in his heart he despises, and break ont in open rebellion at last. From the ethical point of view, the advice which seems to be implied, of deliberately choosing a way of setting doubts at rest which is as efficacious on the side of error as of truth, of vice as of virtue, seems to me, to say the least, of doubtful tendency. We must often act in doubtful cases, and take the risk, amongst others, of thus confirming ourselves in error, but certainly there can be no more solemn motive for weighing well our beliefs before committing ourselves to them by action than the fact that we may, by habit, pervert our moral sense, blind our judgment and stifle our conscience.

To the man who believes that there is a universe, of which he forms an infinitesimal part, and that all his interests depend on his attitude toward the power that works in it, it is of infinitely more interest to know how he can know the truth than how he can convince himself of this or that. Shall truth be our master, to be followed and obeyed, though he command us to give up all else that we hold dear, or our servant, to be employed as suits our passion or caprice, and dismissed when he will no longer serve our purpose?

This is perhaps the most momentous question that we are called on to decide. The man who makes the wrong choice may or may not attain what he seeks, but though he gain the whole world, he will lose his own soul.

W. L. Worcester.

THE NATURE OF MIND AND THE MEANING OF REALITY.*

Professor William James's supposition of "an hallucinatory candle" seen by a 'new born mind entirely blank and waiting for experience to begin" is an impossible and self-contradictory figment. We might as well speak of the dry Niagara falls employed in the manufacture of some material goods out of nothing. For, first,

*This article was suggested by Dr. W. L. Worcester's criticism on Professor James's Psychology. When Dr. Worcester discusses Professor James's supposition of an hallucination in a

a mind entirely blank is no mind and, secondly, a blank mind if it could exist at all, would have no hallucinations. An hallucinatory candle can be produced only out of the memories or the combination of memories of former candle-sensations. A blind man sees in his dream no colors, and a deaf man hears no symphonies.

A new-born babe is already in possession of many inherited memories. Thus the first sense-impressions after the babe's birth find the organism, especially its skin, nerves and muscles predisposed for their reception. The babe's organism accordingly presents an instance of a relative but not of an absolute blank; an absolute blank of a something that is to develop into mind can mean only a lump of sentient matter at the moment of formation. As soon as it is formed it is exposed in every second of its existence to innumerable impressions which fill the blank with contents and these contents are the mind that is developing.

Sentient substance is not at rest, but like a flame it is possessed of an incessant activity. The form of this activity is both extraordinarily plastic and stable. It is plastic, for every impression together with the reaction of the impression modifies it and leaves a trace: it is stable for the traces of all the impressions and reactions are preserved.

The first sense-impression of a lump of sentient substance produces an irritation which objectively considered is a commotion of the sentient substance and subjectively considered a feeling, the substance being sentient *ex hypothesi*. This first and primitive feeling is meaningless, for it has not, and cannot have, any reference to any other feeling, memory or mind, and meaning is created through the interaction of feelings with memories of feelings.

Some later sense-impression of the same kind will not only produce the same irritation but also serve as an irritation to awaken the memory-trace left by the former sense-impression. The new feeling will melt into one with the reawakened memory of the former feeling. In the long run many traces of the same kind which are, as it were, deposited in the same place will constitute an organ predisposed to receive the correspondent impressions; and now a sense-impression received by such an organ may be called a sensation. A sensation is not merely a feeling, it is a feeling of a special kind and it is felt to be of a special kind. In other words, a sensation is a feeling that has acquired meaning; and this meaning is the product of the interaction and coöperation of feelings and memories. Sensations have become symbols representing the cause of the sense-impression which produced the sensation, and ideas are symbols of a higher order representing either whole classes of a certain kind of causes of sense-impressions or certain features thereof, or certain relations among them.

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blank mind, saying that it would be "the only possible reality of that mind," he almost seems to adopt Professor James's views of the subject himself. Clearness about such fundamental terms as mind and reality, are so much needed that the following remarks may not be out of place as a further explanation of the subject. Exactness in fundamental and general terms will save much labor in detail work.

Thus every mind is a system of sentient symbols. These symbols being as it were pictures intended somehow to represent or allegorically speaking to portray things are called "ideas," while the things symbolised are in their totality called objective existence or "reality."

Considering the nature of mind, it is obvious that there cannot be an entirely blank mind. We might as well speak of an entirely blank picture. But an entirely blank picture is a canvas and no picture at all. That a mind which is not as yet a mind can have neither sensations nor hallucinations is almost self-evident. Similarly there is no sense in saying that a picture that consists of an utter blank and thus is properly speaking no picture at all but an empty canvas, either does or does not correctly represent a certain object.

The word "real" is used in two senses (1) as a name for everything that exists and (2) to signify that kind of existence which is the object of our sensory and mental experience, i. e. the objective world so-called. The former of these two definitions is more comprehensive; for it includes the realm of mentality, the ideal world of subjectivity. The latter is used in contrast to the subjective world of mental life and thus expressly excludes the ideal realm of the mind and of mental symbols.

The questions as to What is reality? and Is there anything real at all? must not be formulated as they are by Professor James, in terms of belief but in a statement of facts and by defining certain facts as real.

An hallucination is real in the first sense of the word; it is an actual existence; it is a feeling taking place in the mind of some organism. It is also real in the second sense of the word in so far as it is a vibration of a brain structure. However an hallucination is not real in the second sense of the word in so far as its meaning has not its correspondent analogue.

Let the meaning of a certain mental symbol be a candle, under which name we comprise a certain group of experiences, and let the cerebral structure of this mental symbol be awakened by another stimulus than that which is generally called a candle. Those experiences which as a group are called a candle are of a certain kind. If a piece of paper approaches the lighted candle, it will burn. An hallucinatory candle will leave the paper intact, although the person who has the hallucination may see the paper burn. Thus the ideas or images of objects are built up of experiences which have taught us that under certain conditions certain events happen; in consequence of certain actions there are constantly certain reactions taking place. Reality consists of such facts; it is the sum total of all reactions; reality is the nature of objects which react somehow.

Those who jump at the conclusion that our subjective sensations, such as colors, tastes, sounds, etc., must be regarded as objective properties of things, are grossly mistaken. Our sensations are not qualities of things but subjective phenomena; they do not inform us about the nature of things, but reveal to us how things affect our senses. Those however who deny or doubt objective existence are no less

mistaken. The world is not a subjective phenomenon of sensations, but an objective existence symbolised in sensations.

The question is not "Does reality exist?" but "What is Reality?" or "What is the meaning of 'real'?" When we say "Objects are real," we mean that they resist, they react, their presence produces somehow some effect. When we say, We ourselves are real, we mean that we react upon the objects with which we come in contact, we mean, that in our bodily existence we are objects in an objective world.

Actions and reactions are taking place. This is a fact. He who denies it is like the man who declares that he is not at home; he contradicts himself: for the denial of a question is a reaction upon an action. The term reality is the symbol of the nature of actions and reactions in their efficacy, it denotes the essence of facts and thus the question "Does reality exist?" has no sense. We denote that which exists, that which acts and reacts, that which is a fact, or howsoever we may express it, by the word "reality." We might deny that the reactions of the objective world are constant, or that a certain idea of a certain reaction is erroneous, viz. that the reaction if put to the test would prove to be different from what it was expected—but all these denials and doubts which are of daily occurrence in the domain of science presuppose that there are reactions taking place and reality or objective existence is only a collective name for these reactions and their nature. The name object still preserves the idea of reaction, for object is that which reacts upon touch, which resists, which is objected.

We shall lose ourselves in inextricable confusion by making a matter of doubt and belief what is really a statement of facts. To speak of a doubt or belief in the reality of things in general is tantamount to speaking of a belief in our experiences which, whatever their particular nature may be, are facts. And to doubt our experiences, not the correctness of a particular experience, but experience in general, i. e. the very existence of experience is tantamount to doubting our own being.

A consideration of what we mean by an hallucination can best make clear what we mean, and rationally can only mean, by reality. A real candle is a mental symbol of something which will under certain conditions react in a certain way. An hallucinatory candle is also a mental symbol, but the thing which it purports to mean, does not exist; i. e. there is nothing that will react. The symbol is there, but not that something the existence of which the symbol of the idea "candle" would indicate.

This method of dealing with the problem of the old naïve realism and the pseudo-critical idealism of former times is not based upon the assumption of the reality of things (which means, of the reality of reality); it is simply a careful formulation of the problem to prevent our being entangled all about with contradictions; it is the method of rendering clear the basic principle of positivism, that all knowledge is a description of facts, which description of facts is made for the purpose of, dealing with facts.

P. C.

MONISM NOT MECHANICALISM.

COMMENTS UPON PROF. ERNST HAECKEL'S POSITION.

Prof. Ernst Haeckel's Anthropogeny, the fourth edition of which appeared of late,* brings again into prominence that conception of monism which identifies the monistic view with mechanicalism.

A review of this book has appeared already in *The Open Court*, No. 231, in which we called attention to the great merits of a work which has become a household book, not only for the scientist, but for every educated reader who is interested in man and the origin of man. Our knowledge in Anthropogeny, certainly, will influence not only our general world-conception, but through our general world-conception it will extend its influence not only over every branch of science but also into the broader fields of man's daily life and his practical morality.

Professor Haeckel is the most popular naturalist of to-day and there is no one, perhaps, who has made a more effective propaganda for the monistic world-conception than he. So it is almost a matter of course that his definition of monism is generally accepted as the standard. We have formulated our view of monism in a way which in principle and general outlines concurs with the commonly accepted usage of the term, yet it deviates from it in some important points which are perhaps not merely matters of detail. It will be difficult to say how far we agree and how far we disagree with Professor Haeckel's monism because those subjects in which we disagree, have never been elaborated by him, and we are inclined to believe that he would modify some of his expressions, if he devoted a quiet hour's thought to the objections we have to make to his definitions.

Professor Haeckel's monism being mechanicalism savors strongly of materialism. He says in the latest edition of his "Anthropogenie" which is now before us, Vol. II, p. 851:

"There can be no doubt that a thorough consideration and unprejudiced de-
"liberation of these facts will lead to a decisive victory of that philosophical concep-
"tion which with one word we call monistic or mechanical in opposition to the
"dualistic and teleological. Upon the latter are based most of the philosophical sys-
"tems of antiquity, of the mediæval times, and also of the present time. The me-
"chanical or monistic philosophy declares that certain and immutable laws obtain
"everywhere in the phenomena of human life as much as in nature generally, that
"a necessary causal connexus obtains everywhere in phenomena and, accordingly,
"that the knowable world forms throughout a unitary whole, a monon. Monism
"moreover maintains that all phenomena are produced alone through mechanical

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* *Anthropogenie oder Entwickelungsgeschichte des Menschen.* Keimes-und Stammesgeschichte. By Ernst Haeckel. Mit 20 Tafeln, 440 Holzschnitten und 25 genetischen Tabellen. Vierte, umgearbeitete und vermehrte Auflage. Leipzig: Engelmann.

"causes *(causæ efficientes)* not through premeditated purposive causes *(causæ "finales)*."

And in the first lecture "The History of Evolution and Philosophy," (p. 15) he says:

"We shall clearly recognise in the following investigations how the most won-"derful enigmas of human and animal organisations, heretofore considered as in-"inaccessible, have become accessible to a natural solution through Darwin's re-"form in the doctrine of evolution by a mechanical explanation of purposeless "efficient causes."

In agreement with these views, Professor Haeckel regards the terms necessity and mechanicalism as equivalent terms. He rejects any kind of teleology, any kind of final causes, and also the freedom of the will. He opposes the so-called moral world-order as contradictory to the idea that the world is regulated by mechanical law and he adopts the latter to the exclusion of the former. All these points come out very strongly and clearly in Professor Haeckel's letter to the editor of *The Open Court*, where his view of monism is graphically presented in a concise tabular form.

We here reproduce this table from No. 212 of *The Open Court*, for the convenience of our readers:

Monism.	Fundamental Concepts.	Dualism.
Inseparable.	Matter and force. God and world. Soul and body.	As a matter of principle distinct entities.
Mechanicalism. Necessary evolution.	Life.	Vitalism. Teleological creation.
Universal (conservation of energy). Determinism.	Immortality. Freedom of will.	Individual. A person's will being absolutely free.
Causae efficientes. (Efficient causes.)	Causation.	Causae finales. (Final causes.)
Regulated by mechanical law.	World-order.	So-called "Moral."
Inseparable and subject to the same laws.	Inorganic and organic nature.	As a matter of principle distinct and subject to different laws.

Now we agree with Professor Haeckel in one main point, viz. "that certain "and immutable laws obtain everywhere in the phenomena of human life as much "as in nature generally, and that the knowable world forms throughout a unitary "whole, a monon." But we cannot agree to his proposition that "the wonderful "enigmas of organised life are accessible to a natural solution by a mechanical ex-"planation of purposeless efficient causes." We grant willingly that mechanical

explanations will serve for all motions that take place in the world; even the motions of the brain take place in strict obedience to the laws of molar and molecular mechanics. But a mechanical explanation is not applicable to that which is not motion. If it were applicable it would not be desirable, for it would be of no avail. Mechanical explanations are to be limited to mechanical phenomena. Feeling however is not a mechanical phenomenon, and an idea, being a special and a very complex kind of a feeling, or rather and more accurately expressed, being the special meaning of a very complex feeling, is not a mechanical phenomenon either. It is true that when a feeling takes place and when an idea is thought in the brain of an organised being, that a certain nervous action takes place. The nervous action is a motion and this motion represents a definite amount of energy. There is no theoretical difficulty, although there are almost insurmountable practical difficulties, in measuring the definite amount of potential energy that is changed into kinetic energy when a man thinks. Yet the brain-motion is not the idea and by a mechanical explanation of the brain-motion we have not even touched the problem of what the nature of the idea is, why ideas originate and how they act.

We know that Professor Haeckel when he so vigorously insists on mechanicalism, opposes those philosophers who believe that there are motions which cannot be explained by mechanical laws. We side with Professor Haeckel against any one who maintains that some motions are mechanical (molar or molecular) and others are exceptions to the laws of mechanics, representing a kind of hypermechanics. But we cannot admit the explanation by mechanical laws of non-mechanical phenomena.

Professor Haeckel speaks of purposeless efficient causes—*zwecklos thätige Ursachen*. He speaks of efficient causes, as excluding final causes. He is right in his objection to final causes as the term is commonly used. But while there are causes that are *zwecklos*, there are no causes that are *ziellos*. Every process of causation takes a definite course, it has a certain and definable direction. The end of this direction need not be a conscious aim, but it is an aim whatever it be, it is a *Ziel*. In this sense every efficient cause is at the same time a final cause. The gravitating stone has no purpose, yet it has an aim. So the evolution of organised life is a natural process having a very definite aim. And this aim of the evolution of organised life is determined by factors of a very complex nature. One of these factors is almost imperceptible at the beginning, but it is of a constantly and rapidly growing importance; and this factor is the psychical element that appears with organised life. This factor is nothing supra-natural, nothing extra-natural, and yet it is not something material or mechanical. It is this factor which in its highest efflorescence changes aims into purposes, and with this change it creates again a new factor of evolution which is the purposive aspiration to conform to the world-order and thus to advance the further progress of mankind. This aspiration is in one word called morality.

When we speak of a moral world-order we mean that such moral behests as were formulated in prescripts by Confucius, by Buddha, by Moses, by Jesus, and other moral teachers of mankind have an objective and immutable foundation in the nature of things. The mechanical law in the province of motions, the logical law in the realm of thought, geometrical proportions in mathematics, the regularity of natural laws, etc., form in our world-conception a part of this moral world-order. The laws of social life are not opposed to them but correlative.

The purpose of a man's action reveals his character, and the character of the man is his innermost nature. In an analogous way the aim of evolution and especially the aim of the evolution of organised beings reveals the character, the innermost nature of the universe. Psychic life is absent so far as we can see in the primordial world substance as it appears in the form of a nebula; it is absent still in the primordial state of planets. It appears with the subjective states of awareness that rise into existence in organised life. The subjectivity of unorganised matter is, in comparison with man's subjectivity, to be considered as a blank; i. e., if there is in it a state of awareness, which we have reasons to doubt, it is apparently without meaning; it does not symbolise external objects; it is no mind; it is, as it were, blind. Yet the aim of evolution being the development of psychical life, shows that the subjectivity of unorganised matter is spiritual in its innermost nature. And the aim of psychical life being the development of moral ideals, we are very well justified in speaking of the world-order as moral. When speaking of the world-order as moral we mean that the moral prescripts of the great ethical teachers of mankind are founded in and derived from the world-order of nature.

There is one objection to calling the world-order moral, and we therefore dislike to use the phrase. It is this: Morality means conformity to a certain standard. The standard is not moral, but those who do or do not conform to it are moral or immoral. Therefore if there is any truth in the idea of God it is this that there is a standard for human conduct to conform to, there is an authority which has to be obeyed and this authority is God. To speak of God as moral or immoral is anthropomorphism. If "God" means anything, it means that power of the world-order obedience to which is called morality. If we say God is moral, God ceases to be God, the moral authority above him to which he has to conform would be the really true God. Thus logically the personal conception of God leads to a superpersonal conception of God.

These are in brief our objections to Professor Haeckel's definition of monism as being identical with mechanicalism and perhaps also with materialism. My opinion that Professor Haeckel may after all accede to our view of monism is based upon an interesting and friendly conversation which I enjoyed with him several years ago in Jena. Professor Haeckel is not the one-sided naturalist that he is often represented to be by orthodox clergymen. He does not see the workings of the natural laws only, he sees also the moral aspect to which a consideration of the natural laws leads. That his books emphasise the former without entering into the problems of the latter is

natural for a scientist, but he personally is certainly even broader than are his books, and I should say that his very opposition to certain errors which have been foisted by an antiquated dogmatism upon our religious institutions, show the deeply religious spirit of his character. P. C.

MR. CHARLES S. PEIRCE ON NECESSITY.

Mr. Charles S. Peirce is one of those thinkers who in the investigation of a subject go right down to the bottom of the problem. This appears to me the more conspicuously so, as the result to which his investigations lead stand in a strong contrast to my own views. Yet I cannot help admiring the boldness of his trenchant critique which finds the difficulties at the point where really the main difficulty of all philosophical inquiry lies buried. It lies buried, i. e. it does not appear on the surface of things. If it lay on the surface, our most superficial thinkers would naturally light on it; but most of them walk their way in peace, unmolested by the question, Is there any truth in the idea of necessity. An editorial treatment of this problem may be expected in a forthcoming number of *The Monist*. P. C.

BOOK REVIEWS.

EINLEITUNG IN DAS ALTE TESTAMENT. By *C. H. Cornill*, Professor at the University at Königsberg.

When Darwin and his followers first gave to the world the astonishing results of their studies, few were those who at once recognised the importance of the new theories and still fewer those who readily accepted them. But within the last thirty years, gradually but steadily the number of those who have adopted as virtually true the hypotheses of the new school, has been increasing until to-day those are in the minority who teach a view different from Darwin on the origin and evolution of the universe. The history and fate of the new studies in Biblical criticism bear a striking analogy to the reception accorded to Darwinian researches. At first they were met with well nigh universal opposition. They were declared to be subversive of the holiest interests of religion. They were held to rob the Bible of its glory. But by slow degrees the first passion yielded to wiser counsel. Curiosity led to the examination of the new positions; and in consequence in ever widening circles the conviction gained ground that far from taking away from the dignity of the old Hebrew literature, these new investigations and the method upon which they footed, lent new lustre to the collection of ancient writings. And to-day the battle has been won by the school of Wellhausen and Kuenen. Few are those who to-day urge the old views on the authorship date and historical succession of the several parts composing what is called the O. T. or even on the canonisation of the whole collection.

The startling assumptions of Wellhausen, Graf, and their Dutch colleagues had their forerunners, as had Darwin and Wallace. But when George and Vatke in the fourth decade of our century and Reuss, in his first academic lectures, virtually anticipated the lines of research of their later successors, the world was too busy with other matters to give their labors much attention. (Cfr. this work, p. 8.) For all this, primitive orthodoxy had only few representatives in this domain, at least in Germany. While Hävernick and Keil and Hengstenberg, are ranged on the extreme right of the line defending with all the resources of a vast erudition the traditional views, the middle ground is occupied by such men as Ewald, and Hitzig,

and the teacher of these De-Wette, a school of critics that to-day yet counts among its protagonists such men as Dillmann and Schrader and Kittel. With Graf a new era may be said to have begun for Biblical criticism. Notwithstanding the violent opposition encountered, the school has won the day. Its greatest triumph was perhaps the acquiescence in its positions shortly before his death by that master of Biblical science, Professor Delitzsch of Leipzig. What the cardinal point of contention is between the warring camps, is well known. It is the relative age and position of what is technically designated as the Priestly code, in the Hexateuch. According to the new school this portion is the capping stone of the edifice, as it were. For Dillmann it is pre-exilic; for Wellhausen post-exilic.

The book before us places itself without equivocation on the standpoint of this latest criticism. It is thus another leaf in the laurel wreath crowning the men of the new dispensation. For the name of the author is guarantee of the scholarly character of the work; and views which have the endorsement of a man of the renown and the scholarship of Professor Cornill carry the presumption of having truth on their side. Professor Cornill is however, a new comer in this special field. His life work, as he himself says, lies in another province of the vast realm of Biblical critical studies. His fame is associated with his critical edition of the text of Ezekiel, a work which will forever stand as the best guide for all who would venture on the dangerous ground of conjectural textual emendations. For Cornill was the first to lay down the method which above all must be followed in so venturesome a task and his new version is the classic illustration of the correctness of his method of proceeding. That a man who has established for himself the reputation of being methodic and painstaking almost to a fault, a man who is dowered with critical acumen of the highest order, should after going anew over the whole ground cast the weight of his scholarly authority in favor of the views of the new critical school is a fact the significance of which cannot be blinked. We are indeed glad that the publishers entrusted this number of their intended series of manuals for theological students, to a scholar who had hitherto not written *ex cathedra* on this particular subject. Thus was ensured a new and impartial examination of all the points involved.

The ends which this series of manuals is to serve, decided of course the style and scope of this work. Of introductions *(Einleitungen)* to the O. T. there was no scarcity; but (see preface) they were either too bulky and too full and thus did not answer the requirements of the student, not yet a scholar; or they were too brief, mere "ponies" as we here in America would say, intended to be learnt by heart for the purpose of passing a good examination. The difficulty thus consisted in combining thoroughness with the necessary brevity without sacrificing lucidity. No mere results on the other hand were to be stated. The student was to be initiated into the course of the investigations, the reasons for the conclusions and thus his interest was to be awakened and the way prepared for independent research on his own part. That the author has succeeded in carrying out this his programme,

every section of the book confirms. His fear that the full analysis in paragraph 12, of the priestly code will be found to be out of place in an "outline of this kind" is groundless. We do not hesitate that this very section is the gem of the whole work full as it is of numerous passages which cannot but stir to profitable reflection the student. None can lay this book aside without confessing that he has gained a "Gesammtanschauung," an insight into the unity and coherence of the new views, apt to convince all earnest and unbiased minds of the truth that in this science *(Wissenschaft)* criticism is standing on firm ground. In the selection of the books named at the head of each chapter, or in the course of the discussion, the Professor has displayed most consummate skill. There is scarce one important work which with profit may be consulted but is mentioned; and what is more in the right connection. This feature is not the least valuable in the whole work; the student thus has at ready command a bibliography which excludes the chaff and stores the wheat.

But let us dwell a little more specifically on the plan and execution and the contents of this book. Two plans may suggest themselves to the writer of an "introduction" of this kind. He may attempt to give a picture of the rise of literature among the ancient Hebrews and treat of the different writings which have come down to us, often the fragments of larger works, in the order of their composition and at the same time connect with this discussion the reasons for departing from the traditional views as to their dates and so forth and for assigning them to a new age. This would be virtually writing a history of the literature. It is this plan which Reuss adopted. But according to our Professor, investigation has not proceeded far enough to make such a history possible. He even doubts whether it ever will (p. 2). Perhaps his verdict is justified. At all events he is right when he urges that in such a sequence much which belongs to the branch which he is to teach, will scarcely find its proper or organic place. And therefore it was a wise conclusion of his to adhere to the second plan, the traditional. for such *Einleitungen* which treats of the different books in the order of the Hebrew canon and finally takes up the discussion of such questions as the collection of the canon, the condition of the text, the different ancient versions and their value for the reconstruction, if possible, of the true original. But what is an *Einleitung?* It is that theological "discipline" which concerns itself about holy scripture as a book. It is its business to fix the time when and the manner how the several writings were composed, which now collectively form the holy scriptures, again it is one of its main objects to understand at what period and under what conditions the several writings were collected and also the manner of the tradition of this collection down to us. The method of this inquiry can be none other but the historic critical. To this definition of the character of this discipline, to retain this German name, none will take exception. It is both succinct and complete. The second paragraph gives a full survey of the history of the studies in this field. It covers within the brief space of ten pages the results of scholarly labors extending over a period of over fourteen hundred years. It is not a dry enumeration of names and book titles. Under each scholar, the salient ele-

ment of his contribution is emphasised. The living principle of these studies is thus illustrated in its growth and successive development. Take for instance this description of Wellhausen's method, and in a similar manner that of all other predecessors or co-laborers is brought out: "At the hand of the history of the cultus and that of tradition, he shows how these two lines of development run parallel to each other, how the religious process of evolution at every halt and turn finds its expression and at the same time its corroboration in the productions of literature: Israel and Judaism are two concepts radically different from each other; it is the canon that differentiates Judaism from old Israel." Paragraph three states the author's reasons for treating the single books first before taking up the discussion of their collection into a canon, and also why the apycrypha are excluded. These not being in the canon, are foreign to the purposes of an introduction into the canon books. None will deny that the Professor's arguments on these points are irrefutable. His inquiry into the age of the art of writing among the Hebrews concludes this general preliminary. He is of the opinion that as far back as the memory of the Hebrews goes, they were acquainted with this art as nowhere there is a sign that among them there was a dim recollection of an analphabetic period. Recent finds have made it plain that during the reign of the Pharaoh of the exodus a lively correspondence was kept up between Palestine and Egypt, while for the reign of David the names of his court officials is documentary proof that there were writers at his court. The use of the pen must have been pretty general among the people as is shown by Judges viii, a chapter which belongs to the oldest layer of historical compositions.

Our space is too limited to abstract every chapter of this remarkable book. Much as we should like to do this, and especially as in this manner alone we can hope to do justice to its merits, we must confine ourselves, now that we come to the "special introduction" to a few selections taken from the discussion of the main points in reference to books which have been the centre of critical study. The Pentateuch as is natural receives the lion's share of the author's attention. We have no hesitancy in saying that his is the best exposition of the modern views which has yet come under our notice. The Pentateuch cannot be the work of Moses; internal evidence, as already pointed out by Aben Esra, Hobbes, Peyrerius, and Spinoza, render the traditional assumption of Mosaic authorship untenable. But the Pentateuch cannot be the work of one author. The critical labors of one and a half century, sketched most skillfully, has made it plain that the Pentateuch has been "worked together" from four independent original writings, *(Quellenschriften)* a yahwistic work, J. an elohistic, E. a Deuteronomistic D. and a priestly which after Kuenen is denoted as P. On this general division the scholars are agreed, the relative age of the separate parts alone is yet under controversy. In paragraph seven an analysis is given of the first four books as assigned to the three sources. Deuteronomy occupies a position of its own. It is characteristically different in language and thought from the others; it is something essentially new and is in itself homogeneous. In the main Deuteronomy is the book of the covenant mentioned in II. Kings xxiii; this original

D. is now incorporated in chapters xii, xiii, xiv–xvii, where however certain verses and even parts of verses must be eliminated. Perhaps xxviii, or as Professor Cornill argues, something more succinct but of the same general nature, a curse, may have belonged to the original D. This must have been the book published under such extraordinary circumstances in 621. Who is its author? It presents itself as the work of Moses. But this is characteristic of the tendency of the age to take a great man as the father of a new literary production, a tendency which was perfectly well understood and was far above the level of a literary deception. Its early manifestation in D. is merely proof that even then Moses was among the people the lawgiver *par excellence*. The author of D. must be looked for in the circle of the pious who in consequence of Manasse's retrogression were bound all the more closely unto each other. In other words among the men of the prophetic party, who must have had influence also over certain priestly orders, for D. is a compromise and an alliance between the prophets and the priests. Besides these components of original D. the book contains in its present form additions and duplicates which partly are historical and hence are denoted by D.h, partly parenetic, hence D.p; but again in these are many later interpolations. For the particulars in this regard, we must refer to the work of Cornill itself. His analysis displays a keen eye and will on the whole be sure to be accepted as final. The date of D. being 621, what is the time of the other great sources of the present Pentateuch. It is clear that D. is acquainted with the "book of the covenant" Ex. xx, 23.–xxiii, 33. and with both Decalogues (?). Thus it was acquainted with JE. P. on the other hand is totally unknown. The historical portions of D. confirm this deduction from the legislative pieces. JE is clearly known to D. while of a knowledge of P. there is not the least trace. How far back of 621 may we go to fix the date of both J. and E.? The period of the first kings seem to be the limit, or more particularly the reign of David. But which of the two is the elder, J. or E.? There can be no question that J. is. For he is more naïve as appears from a comparison among others of chapters Gen. xx, 1–17. xxi 22–32 which belong to E., with chapter Gen. xxvi, 1–33 which is J.'s. E. appears to be a theological recasting of J. E. is the work of the Northern kingdom, Joseph always appears as the leader of his brothers and other features confirm this impression. The year 722, when in the Northern realm national consciousness was at its high water mark may then be supposed to be the *terminus ad quem*. But is E. as we have it a literary unit? Kuenen has proven that it is not. A century after its original composition a second edition so to speak must have been made with a view to meet the requirements and prejudices of the Judaic population of the South. Ex. chapters 32–33, are of great decisive importance in this connection. They are a rebuke for the golden calf worship at Dan and Bethel. Thus E. is divided again into two E.1 and E.2, to which come yet other later amplifications f. i. Num. xxi, 32–35, E.1 then belongs to the reign of Jeroboam II (750), and E.2 is the work of a later author living in Judah and under the influence of prophetic ideas. The locality of J. is a point of controversy. Cornill sides with those who maintain that his home is

the Southern kingdom of Judah. The incidents in the Patriarchal biographies which seem to weaken such an assumption are explained as original traits of tradition which J. had no interest to change. J. again is not a literary unit; it compromises J.1, J.2, and even J.3. The reasons for these subdivisions are clearly given in the book. J. must have been composed in its different parts between 850–625. The priestly code occupies a whole paragraph, the signal merit of which we have noticed above. This is indeed the master-piece of a great critical master. The many points which are involved in the discussion of this mooted problem are treated with a clearness and a calmness which carry conviction to the most sceptical. P presents a spiritual unity but not a literary. P. is the offspring of P.1 an old priestly record and P.2 a narrative and legislative composition which is as it were the substance and skeleton of P. around which younger accretions have gathered at different times for which Cornill in order to simplify his symbols proposes the designation of P.x. J. S. Vater as early as 1805 has proven that in the so-called Mosaism, of the influence in literary and legislative respect of our P. there is no evidence before the captivity. Wellhausen and Kayser and Kuenen have demonstrated what for Vatke was a dim suspicion. Dillmann, Kittel, and Delitzsch as little as Baudissin have succeeded in saving the pre-exilic character of P. Certain it is that before Esra 458 (444), this code had no official recognition. From Nehemiah we have the proof that our P. corresponds to the "Book of the Law of Moses" which was read at the great assembly in October 444. On the other hand the book of Chronicles is based on P. as it details history, as it would have been, if P. had been the law regulating life and and liturgy and temple service. Had P. been known before D. what reason should the priest have had who promulgated it to substitute for it another code less advantageous for his own order? P. is clearly a development of D. D. presents itself as something new in all of its demands, in its insistence on centralisation, in one sanctuary and in one priestly order on the legitimacy of the tribe of Levi exclusively. Of the tabernacle there is not one syllable in the whole of the pre-exile literature. It is a clear projection into antiquity of the Deuteronomic Central sanctuary. The relations of P. to Ezekiel make this still plainer. This prophet is the link of transition between D. and P. The omissions in the festal cycle of E. can only be explained that this prophet-priest was unacquainted with P. The captivity is thus the time for the composition of P. in the main. Its emphasis on circumcision as the sign of the covenant which decides the connection with the chosen seed and nation, is proof of this. And the chronology finally corroborates all previous inferences as the chronology of Genesis which is so important a part of P. is unmistakably a reconstruction after certain principles of the Babylonian history of the beginnings. (Oppert.) P. was written during the century from Ezekiel to Esra (570–458). It was not merely P.2 that Esra read before the assembled people. P.1 and P.2 seem thus to have been united even at this time. But it is not to be assumed that under Esra P. was already a part of the other portions of our Pentateuch. P. itself contains parts which are later than Esra. P.x is undoubtedly later and these additions

are easily explained on the very assumption of the official introduction of P. P. is not the work of an individual; it is that of a whole school, a school which naturally formed in the captivity. Besides these "source-writings," the Pentateuch contains smaller pieces of great antiquity mostly of a poetic character which had for a long time an independent existence. Such is Gen. xlix, Exodus xv, and others. Exodus xxi–xxiii, the so-called book of the covenant, requires also a treatment by itself. It is characteristic of this book that it ignores totally the Decalogue. Kuenen has solved the difficulties in which this collection of judicial precedents is involved by pointing out that it is the predecessor of D. D. is merely the substitute for this. As it is older than E. and is the precipitate of the unwritten law of the earlier kingly period, we place its date in the ninth century. Lev. xvii–xxvi while betraying in many regards affinity with P. is still distinct from it. It stands between Ezekiel and P.; it is one of the many priestly Thoroth which undoubtedly were current among the class whom they concerned. How now did these component parts finally combine? This is elucidated in paragraph fourteen. First J. and E. were put together, by an editor of Jehovistic leanings, whom Wellhausen has styled Rj. (R. standing for German Redacteur, Editor). This Rj. worked over, and that often decidedly, his materials in keeping with his own convictions. This Rj. probably lived about 650. His position is pre-deuteronomic. A second editor combined the work of Rj. with D. He is designated as Rd. His was the placing of the old book of the covenant near Sinai in order to gain room for Deuteronomy. He thus became the cause of much confusion. He lived during the second half of the Babylonian captivity. JED. was finally combined with P. by a third editor (Rp.) who is characterised by considerable reverence for the old documents. He omitted much to guard against repetition but at the same time where the relations differed he preserved them most faithfully and endeavored to place them into their proper position and connection. Rp. was thus virtually the author of our Pentateuch. But living after Esra even with him the Pentateuch was not yet closed. Many younger hands had a share in its final shaping. Glosses were added or crept into the text, as is shown by comparison with the lxx. The book of Joshuah is a necessary continuation and complement of the Pentateuch.

But here we must stop quoting in detail. Much as we should desire to reproduce Cornill's own words relating to other Biblical books, want of space precludes even the attempt. Suffice it to say that as in his treatment of the Pentateuch, so every question bearing on Biblical criticism is handled with the skill of the master. At whatever turn we ask information of this book we receive it most abundantly. This is indeed a student's book. It stimulates while it instructs. It leads while it describes the road passed over. In the discussion of the critical problems on the Psalms, the prophets Isaiah and Zechariah, on the final collection of the canon, the translation of the Bible and the relation of the different recensions to each other, the historical books as distinct from Chronicles, and Esra, and so forth, every point is treated with a lucidity of style and a fulness of material which is the rare gift of

a man who is saturated with his science and loves it for its own sake. This book is destined to rank among the classics. Its earnest study and repeated consultation can therefore be recommended to all who wish to inform themselves about the method and the achievements of the critical schools. The kindred book by Driver, recently published will not make a translation into English of Cornill's manual less desirable. We take leave from the author with a feeling of great gratitude for the pleasure and the profit we derived from his contribution to the literature of Biblical scholarship. The book is well printed and singularly free from typographical errors.

DR. E. G. HIRSCH.

THE PRESENT POSITION OF THE PHILOSOPHICAL SCIENCES. An Inaugural Lecture. By *Andrew Seth*, M. A. Edinburgh and London: William Blackwood and Sons. 1891.

As stated by the author, this lecture deals, not with the circle of the philosophical sciences, but only with the subjects traditionally associated with a Chair of Logic and Metaphysics in Scotland. These subjects belong to the threefold classification of logical, psychological, and metaphysical, or philosophical in the strict sense. They therefore embrace the study of the conditions to which valid reasoning must conform, the investigation, introspectively and otherwise, of the phenomena of consciousness, and the study of the twofold question of knowing and being, which as epistemology and metaphysics are included under the designation of Philosophy. These three lines of learning are cognate, and the first two are in a measure introductory to the third, or at least, says Professor Seth, if we go beneath the surface they lead us into the very heart of philosophical difficulties. The lecturer refers in his sketch of the present outlook in these three departments of science to the marvellous activity displayed in the department of psychology. All the influences at work may be said to meet and come to fruition in Mr. Ward's "masterly treatise" in the "Encyclopædia Britannica" and "the rich and stimulating volumes" of Professor James, of Harvard. Experimental psychology is now widely spread in Germany and has been enthusiastically taken up in America, "where every well-equipped college aims at the establishment of a psychological or psychophysical laboratory." Professor Seth thinks, however, that the experimental psychologists magnify their office overmuch. The field of experiment is necessarily limited to the facts of sensation, the phenomena of movement, and the time occupied by the simpler mental processes. The results are often so contradictory as to leave everything in doubt, and where definite results are obtainable, their value is often not apparent. Moreover, many of the results are of a purely physiological nature, and are only by courtesy included in psychological science. We would remark on this, that without the experiments the results would not have been obtained and that their value will become apparent when the methods of experiment are perfected. After referring to the critical function of philosophy as a doctrine of knowledge, Professor Seth states that as constructive it should lay special stress on a *tel-*

eological view of the universe. By this is meant, that philosophical teleology should concentrate itself upon the proof that there is an end of evolution, "that there is an organic unity or purpose binding the whole process into one and making it intelligible—in one word, that there *is* evolution and not merely aimless change," such as is supposed in a purely mechanical view of the universe. As to the nature of the end, although the lecturer accepts Hegel's view that all things are relative to man as rational, he cannot accept "the abstraction of the race in place of the living children of men." Ω.

DER MENSCHLICHE WELTBEGRIFF. By Dr. *Richard Avenarius*, Ord. Professor der Philosophie an der Universität Zürich. Leipsic: O. R. Reisland. 1891.

This monograph is as it were a self-confession. The author endeavors to attain clearness in his own philosophical standpoint. He looks back upon the path he has traveled and feels that "the solution of the problem attained is fundamentally a personal self-liberation" (Preface, ix). This book is most commendable reading to all idealists and agnostics. It is an interesting and instructive little work, tracing with a keen psychological criticism the vagaries of certain philosophical conceptions, through which not alone the author but the thinkers of mankind in general have strayed. The philosopher begins with what Avenarius calls the "natural world-conception." But this natural world-conception leads to contradictions and the evil spirit of speculation leads us in a circle through the barren fields of idealism. Avenarius asks: "Is the world really of such a nature that it appears unitary and "consistent only to the superficial thinker, while it leads every one astray who at-"tempts to grasp it more precisely in its entirety—the more so the more consistently "the thinker proceeds?" (p. xiii.)

The author proposes the question: "In what consists the inevitableness of the "contradiction to which every general world-conception seems to have led? Or, "if the world really be unitary what is the evil spirit that leads those astray who "hunger and thirst after a true cognition of the world?"

The author has entirely abandoned the idealistic standpoint, an inclination to which he showed in his first publication, "Philosophie als Denken der Welt gemäss dem Princip des kleinsten Kraftmasses." He says: "Doubt of the correctness of "my way heretofore pursued was induced through the barrenness of theoretical "idealism in the field of psychology; and yet cognition and experience should "belong to this science as psychological ideas."

The author in explaining the development of thought as it takes place in man proceeds in a personal way, so much so that every idealist ought to be satisfied. There are whole pages which teem with *ME*'s and *I*'s. The method of notation is what might be called American. Europeans often complain about our abbreviations, the Y. M. C. A., the S. A. S., the C. B. & Q. Ry., etc., which are great puzzles to the uninitiated newcomer. In a similar way Avenarius introduces such algebraic signs as *R* and *E*, which means reality and the sensations which our fellow-men are sup-

posed to have. M is Man, T is fellow-man. T_1 is the bodily appearance of T, it is R; while T_2 is the E of T, i. e. his soul or spirit. C is the nervous central organ, etc. Thus Avenarius says (p. 18):

"I can in a relative consideration assume R to be the condition of changes in "the E values, supposed to exist in M, only if M and in M the system C are parts "of my supposition," and in a note (p. 117) he adds:

"The skeleton in Goethe's poem, 'The Dead's Dance,' scents without an organ "of smell, sees without eyes, thinks without a brain; it also moves without muscles. "To consider such acts as true is now universally declared to be superstition. The "time will come when the assumption of psychical phenomena without the coör- "dination of the system C will universally be considered in the same way."

The first three chapters remind us very much of W. K. Clifford's article "On the Nature of Things in Themselves." But the article is nowhere mentioned and it is most probable that it is unknown to the author. If Avenarius had known Clifford's view, he might have presented his ideas with more economy of space. But if he did not know Clifford's article, the coincidences of procedure and to a great extent also of the result attained are the more remarkable. What Avenarius calls the E values are termed by Clifford "ejects," and the formation of ejects is called by Avenarius "introjection."

On page 52 we read the following sentence on the three phases of the cognition of the data of experience:

"The first phase alone, that of ingenuous empiricism, cognises, i. e. explains "the totality of these facts without the assistance of a non-sensible . . . . the second "that of ingenuous realism conceives the non-sensible as supersensible, and the "third, that of ingenuous criticism, as the pre-sensible. The epithet ingenuous has "reference to the foundation, not to the doctrinary system built upon it. That "which makes the said realism and criticism ingenuous is a survival of the ingen- "uous empiricism."

The theory which conceives the external cause of an experience as an object, effecting *in* the subject sensations, passes successively through the following views. The object is said to be (1) not within the range of experience, (2) not within the range of cognition, (3) not-existing. Thus it reaches *via* agnosticism its climax in idealism and "pure experience becomes a something that is never truly experienced, it becomes the totality of mere or pure sensations" (p. 62).

The third part of the pamphlet is devoted to "the restitution of the natural world-idea." Here the author comes, at least in some expressions, very close to the solution editorially upheld in *The Monist*. Avenarius says: "The task is . . . . to *describe* the what of my experience so as to make a practical application of it in my dealings with my fellow-men" (p. 79).

Professor Avenarius sums up his conclusions in the term "empirio-critical principal-coördination" which he defines as the inseparability of the ego-experience from the surrounding experience. "The ego and the surrounding belong in

the same sense to every experience. It is a co-ordination peculiar to all experience" (p. 83). If we understand Avenarius correctly he means to say, to express it in our terms, that there is no object but there is a subjective aspect of it, no subject but it appears objectively. Thus there is no subjectivity in itself and there is no objectivity in itself. This is exactly our position, which we call Monism.

The "introjection" was according to Avenarius the evil spirit that led speculation astray. To get rid of this evil spirit the proposition is made to discard "introjection" and replace it by the empirio-critical principal-coördination. But closely considered the latter is only an improved modification of the former, and this plan would better be characterised as discarding the error implied in that kind of introjection theory which assumes that sensations alone are given. The data of experience are not mere feelings, not mere subjectivity, as is maintained by the idealist; nor are they mere objectivity, as is maintained by the ingenuous realist; the data of experience are states of subject-objectness, they are feelings of a certain kind possessing objective significance, and the ideas subject as well as object are abstractions made in a late stage of mental development from this one inseparable whole of subject-objectness (see *The Monist* I, No. 1, pp. 78–79).

Avenarius says in a note (p. 132), "The question should not be 'Why do we believe in the reality of an external world?' but 'Why did we not believe that the external world is real?'" We should say that neither question is admissible. We should first ask: What do we mean by real? Reality is the sum total of our experiences, including the meaning of sensations and ideas, and finds its special application in their reliability. The question, Is the candle I see real? means, Does it react in special ways? Every name of a special object signifies a certain group of actions or reactions observable by the subject. This is what we *call* real and the idealist would have to deny the existence of his own experience to deny the reality of objects in this sense.

Avenarius's books are not easy reading to the English and American student, for his style is sometimes heavy and his constructions are involved. So are his thoughts. But his thoughts show the earnest thinker; the evolution of his views goes in the right direction and his works deserve the attention of his co-workers in the philosophical field. κρς.

Die Bedeutung der theologischen Vorstellungen für die Ethik. By Dr. *Wilhelm Paszkowski*. Berlin: Mayer & Müller. 1891.

Religion originates everywhere, according to the author, in the self-consciousness of man who feels himself an acting and willing being limited by and dependent upon greater and higher powers. The religious relation consists in the regulation of his actions as well as his will with reference to the ordinances of these powers. Dr. Paszkowski lets all the best known religions pass in review before our eyes, tracing

in all of them the connection between the properly religious elements and morality and singling out those religious factors which are most effective in determining man's will in a moral way. In the second part of the little volume he endeavors to show in how far the ecclesiastical organisation of religion in dogma and cult have strengthened and in how far they have weakened this result.

Concerning the most important dogma, which is the belief in immortality, Paszkowski declares that it had its undoubted effects favorable and unfavorable upon the social and moral life of mankind. It has prevented some crimes while it has enhanced others. The question is, he says, whether an individual immortality such as the religions usually picture it, is tenable or not. Modern science and anthropology seem to have proved it an illusion. Yet, as Paulsen says, the belief in immortality is not a mere imagination. Every reality and so also man's life is eternal. It is nonsensical to think of death as a finality. That which has been alive is a necessary, an eternal and inexpugnable part of reality and can never again be blotted out. Through death the continuance of a man's life is cut off, but the contents of his life can never again be annihilated. The real is in its very nature eternal. Paszkowski adds to Paulsen's remarks that man should find the norm of moral action in his relation to his fellowmen and posterity, so that morality need not depend upon any religious views. He will also have to act morally after he has resigned the belief in the reality of the beautiful immortality-dream as it is presented by enthusiastic religiosity.

It appears to us that if the usual conception of immortality is scientifically untenable it devolves upon the moral teacher to present an immortality conception that is tenable. The true immortality conception will never enhance crimes, it will always have a favorable effect upon the morality of mankind. Furthermore man's relation to mankind and also to the universe is of a religious nature. The social order to which man has to conform is one part of those powers a recognition of which constitute religion. If these powers are conceived to be outside the world we have a supernatural deity, if they are the highest, best, and greatest of, and in the world itself, we have an immanent deity and ethics still remains intimately connected with and dependent upon religion.

This it appears must be after all the author's meaning, for he says in prominent print, p. 89: "So long as there are men religion will not cease, for it is one of the "constitutional elements of human nature." "In the same measure as religion be- "comes spiritual, the moral conceptions also will be purified, the mere ceremonial "and the cult-element will lose their importance in religion" (p. 92). "To divide "the ethical factor from the religious, as a matter of principle, will be seen to be "impossible. We can only conciliate the one with the other, both having originated "out of the same source of emotions" (p. 90). κρς.

DAS WAHRNEHMUNGSPROBLEM VOM STANDPUNKTE DES PHYSIKERS, DES PHYSIOLOGEN UND DES PHILOSOPHEN. Beiträge zur Erkenntnistheorie und empirischen PSYCHOLOGIE. By Dr. *Hermann Schwarz*. Leipsic: Duncker & Humblot. 1892.

Dr. Hermann Schwarz treats the most fundamental problem of philosophy—viz. that of perception. He says in the preface: "There is a triple state of facts to which obvious yet strange as it appears to thought, the attention of the naturalist and the philosopher is drawn: the physical, the physiological, the psychical." The physical is the empire of mechanical motion that can be observed with great accuracy to take place everywhere. The physiological is the fact that when certain impressions produce mechanical effects upon the nerves, the result consists in certain sense-data; nervous action is accompanied with sensation. The psychical state of things exhibits the fact that whether or not we want it to be so, colors, sounds, odors, tastes, and touches are always referred to external things, never to the own internal states of the mind. Every one of these facts is strange in itself, for every one represents the contrary of what might be expected *a priori*. Who would expect that the machine-like world of jostling atoms and the glorious world of colors and sounds should have anything in common? And the sense-organs appear to the physiologist as mere physical apparatuses modifying the ether-vibrations somehow. We do not see on the one hand how consciousness can acquire information concerning the external world and on the other hand, how motions can develop something so heterogeneous as is consciousness. If we were confronted with one set of facts only, everything would be plain, but this triple set of facts produces a problem, it makes an explanation necessary and to this explanation Dr. Schwarz has devoted a careful investigation of some four hundred and odd pages.

Schwarz distinguishes two elements in what he calls "ingenuous realism," (1) its methodology and (2) its metaphysics. The methodology of physical science consists in arranging the sense-data, while the metaphysics assume that the objectivity of the sense-data is correctly represented as "things, qualities, and effects." Natural science arrived at a scepsis of the usual metaphysics of naïve realism by a correction of the ingenuous-realistic method, and Kant by critically investigating the background or frame of its theory of cognition. The question is, What is altered by physical science in the conception of ingenuous realism, what by physiology, what by philosophy and why?

In the consciousness of an ingenuous realist the data of touch receive a preference over those of the other senses, which is due to their greater stability. The color of an object disappears, the sounds cease, while the objects remain comparatively the same things to the sense of touch. Thus they are considered as the real objects having certain qualities which produce the phenomena of the other senses. This view is called by Schwarz the first methodological dogma of ingenuous realism. The second dogma is the conception that sense-data are considered as relatively permanent. So colors are conceived to exist objectively in the dark, an error which has

been sufficiently explained by Helmholtz in his "Physiological Optics," § 26. The third dogma completes the second; it is the view that the relative permanence or disappearance of the qualities of objects depends upon causes. Fire is said to be the cause which makes a wire red-hot. The ingenuous realist knows no reciprocal causation, no action and reaction, no *Wechselwirkung*. He assumes in addition to the objects certain force-beings which are regarded as the causes of all change. The sun is said to produce light.

Schwarz explains very well how this view of ingenuous realism naturally arises and also how in the progress of thought it naturally corrects itself. Suppose there were thinking beings with whom smell took the place of touch and sight, would not their world-conception be based upon the data of the sense of smell as is ours upon the data of mechanical motions? If the females of a certain butterfly *(Frostspanner)* are caught in the country and placed at a great distance in some house of the city, the males will be seen on the next morning in great numbers fluttering before the window of the room in which the females are kept. What a perfection of the sense of smell while the senses of touch and sight are very poorly developed! The dog owes his intelligence mainly to the development of the sense of smell. Would not beings whose intelligence is mainly due to the sense of hearing rather attempt to hear the world than to grasp or comprehend it,—to *behorchen* rather than to *begreifen?*

Ingenuous realism is not consistent, and its methodology leads to alterations of its metaphysics. We shall have to attribute either to all the sense-data objective reality or to none of them. The data of touch cannot be treated as exceptions and thus we have the alternative either to return from our scepsis to realism, not to the ingenuous but to a critically modified view of it, or to adopt the extremest form of idealism, be it that of Berkeley or the subjectivism of Fichte.

The author (not unlike Professor Avenarius in his book "Der menschliche Weltbegriff") takes the former view. He says in the concluding chapter *(Die Mängel der Ding-an-sich-Hypothese)*: "This view, viz. that of ingenuous realism, "will in the end of our inquiry be seen to be not only the most natural, and prac- "tically considered the most useful metaphysical theory, but also that conception "which is freest from all theoretical obscurities" (p. 381).

We believe that the book which contains much valuable material, would have been more useful than it actually is, if a chapter had been added containing a summary of the whole inquiry and delineating in great outlines the critically modified form of realism whose most appropriate name we should say is monism—not materialism or mechanicalism which allows all facts to be swallowed up by the conception that the world consists only of matter in motion, but that monism which is a unitary view of the whole, mindful of the fact that the sense-data as well as our concepts are one-sided aspects only of the one and all. If we bear this truth in mind we shall avoid from the beginning the three dogmas (alias errors) of ingenuous materialism.

κρς.

DIE ENTWICKELUNG DES CAUSALPROBLEMS IN DER PHILOSOPHIE SEIT KANT. Studien zur Orientirung über die Aufgaben der Metaphysik und Erkenntnisslehre. (Part II.) By Dr. *Edmund Koenig*. Leipsic: Otto Wigand.

The present work forms the conclusion of a volume published by Dr. Koenig in 1888, entitled *Die Entwickelung des Causalproblems von Cartesius bis Kant*. This same subject is here pursued in the history of modern philosophy since Kant.

The problem of causality, according to Dr. Koenig, has two aspects, an epistemological and a metaphysical. The pre-Kantian efforts dealt chiefly with the latter, the post-Kantian more principally with the former. The latter, the metaphysical question, is, How do things in the world of reality produce effects in one another? The former, or that which relates to the theory of knowledge, is, (1) What is the logical foundation of the idea of causality, what do we imply when we set up two objects as cause and effect, and (2) By what right and to what extent are we justified in imputing to the axiom of causality an objective validity? With respect to the latter, the epistemological point of view, Hume and Kant believed they had established indisputably that experience as given does not furnish sufficient grounds either for the idea or the axiom of causality. On the other hand, others, like Maine de Biran, Schopenhauer, and Trendelenburg, hold, that causality is given us in experience, that we apprehend the causal relation subsisting between things, together with the things. Herbart maintains that the idea of the causal relation has been reached by the logical elaboration of experience in conformity with the general laws of logical thought. Mill and Spencer see in this idea an element that goes beyond experience, but justify it only psychologically, not logically. According to Lotze, Riehl, Wundt, v. Hartmann, Volkelt, the idea is either wholly or partly of intellectual origin. Finally, Comte and a few modern scientists look upon the idea of causality as logically valueless and scientifically superfluous

This is, in brief, the opinions of the greatest thinkers whom Koenig treats of, respecting the logical composition of the idea of causality. But another question, that namely as to the character of the relation in which in the causal judgment the notions of the concrete causes and their effects exist, is one closely allied with this. Some hold, (Trendelenburg, Goering, Herbart, Hamilton, Spencer,) that the relation is one of identity; others that it is synthetical. This aspect is also developed in connection with the last-named thinkers.

With respect to the axiom of causality, we find diametrically opposed to each other the doctrines of empiricism and apriorism; but a number of intermediate opinions have also established themselves. Of the first, Schopenhauer, Lotze, and Volkelt are representatives, but only the theory of the first-named is developed at length. The empiricism of Mill and Goering meets with exhaustive treatment, as does the opposed view of Laas, Riehl, and Wundt and the conciliatory view of Spencer.

With respect to the metaphysical aspect of the question, above-mentioned, we find the modes of conception of phenomenalism and realism opposed. The latter

only is, in the nature of its doctrine, required to explain ontologically the coming about of the causal relation in reality; the former does not recognise Being in itself, and hence there can be no causal connection of such. Schopenhauer's attempt (the view of the forces of nature as the emanation of a Universal Will), and the splendid ontological theories of Herbart and Lotze are regarded by Dr. Koenig as being no more a solution of the problem than were the efforts of their famous predecessors Spinoza, Malebranche, and Leibnitz. These dogmatic realists, as Koenig calls them, proceed from the assumption of the knowableness of the absolute; opposed to them, in this regard, are Spencer, Von Hartmann, and Volkelt, the critical realists, the first of whom gives an ontology that is a vague and metaphysical rendering of the principle of the conservation of energy, the two last of whom impute a transcendental ontological significance to the idea of causality.

The connection, Dr. Koenig concludes, is thus apparent and definite between the metaphysical and epistemological divisions of the question. The ontologist, unless he proceed dogmatically, must prove, that the notion of causality in the form in which critical analysis has established it as a valid and indispensable empirical idea, calls inevitably for the notion of an absolute reality and of a state of things in that reality corresponding to the forms of the connection given. Therefore, the logical analysis of the idea of causality is in any philosophy, pre-eminently determinative of its whole position and bearing.

On the whole, then, in the treatment of the problem forming the subject of this work, four comparatively independent views are found opposed to one another and considered in this opposition; viz., Sensualism and Intellectualism, Positivism and Rationalism, Empiricism and Apriorism, Realism and Phenomenalism. The author views the result of his researches to be, the proof of the untenability of Sensualism, Rationalism, Empiricism, and Realism, so far as this, by an historico-critical analysis, is possible.

This is but a brief sketch of the treatment pursued by the author. The author's own view has been barely hinted at. He is a Kantian. He calls himself a "transcendental idealist." Dr. Koenig's developments, appreciative, acute and pointed as they are, are too detailed and exhaustive to be separately taken into discussion here; but we may illustrate his point of view by a summary of a few remarks of his on the ontological problem as solved by physics. They are as follows.

The *natural* modes of thought cling irresistibly to the notion of a constant substratum; this being so, how does process, how does change spring from an invariability of existence? Physical science answers, by *force;* which exists as a constant potentiality of the substratum, is now active, now latent. Dr. Koenig maintains that in this physical science accomplishes nothing towards the solution of the present problem; it does not by its notion of force make intelligible the *acting* of bodies on each other, for when it comes to define the mode of action of force it involves itself in hopeless difficulties. What is the consequence then, of this dilemma of science, where it can neither render plain the "nature" of the material sub-

stratum, nor the nature of "force," which is, so to speak, the source of the activity of the substratum? It is either agnosticism, which places limits to our knowledge, and which Dr. Koenig rejects as unbecoming true thought, or it is that theory which regards the phenomena alone as real and views the concepts of theoretical physics as the mere shifts and helps of thought whereby we bring the phenomena into connection with one another. This latter view also Dr. Koenig cannot accept. His express contention is, that we can interpret, *ontologically*, the phenomena of reality by the notions of substance, force, etc.; he holds that the position of transcendental idealism is the correct theory here, the position namely that matter and force conceived as transcendent, independent entities cannot be *thought away*, because substantiality and causality are *forms* of transcendental apperception, which alone can make nature an object of cognition; matter and force must, for purposes of empiric observation, of necessity possess the same reality as phenomena themselves.

In connection with this subject Dr. Koenig contests Mach's doctrine, that natural laws are simple economical descriptions of phenomena; he contends that "law" is the foundation of natural science, and particularly so the law of causality.

This, however, does not say much. For the formal laws *in themselves* are empty. The law, the axiom of causality may, *a priori*, be without exception; but this circumstance, the *conviction* we may call it, offers us no hold on nature. When we investigate nature we have to perceive *definite facts;* about which we formulate particular laws or statements. The law of causality, however, does not help us to *discern* the determinative facts or features of any phenomenon. It simply says that *if* we have hit upon the determinative facts and formulated a law describing them, that law holds good throughout all nature. But what is to tell us *what* the characteristic and determinative features of a given event are and when we have lighted on them? The law of causality? Surely not. The law of causality cannot tell us that for falling bodies $v = gt$, i. e. that t is decisive. It simply says that when once this fact has been *discerned* it holds universally good. But it would have asserted the same thing with regard to Galileo's first (false) assumption, namely that $v = Cs$. If, then, the law of causality cannot tell us what those features are between which the causal connection is assumed to exist, what is to tell us? Our observation simply, which must be tested by experience. But our observation has no limits placed to it except this, that it shall select some fact that *represents* the phenomenon and best and most easily enables *us* to represent it. And there is nothing that requires that there should be only *one* feature or *one* aspect of an event by which it is representable; there may be several, as the development of science proves. Accordingly, what selection we make may depend on arbitrary and historical circumstances. And this, as we take it, is Prof. Mach's contention. If it is true, Dr. Koenig's criticism of Mach's view does not hold in its whole extent.

Dr. Koenig's treatment of the separate representative thinkers is exhaustive and in an eminent degree scientific. His work is distinguished by accuracy and

pointedness of characterisation, and by special knowledge of great range. It is a valuable contribution which he has given us, to the study of the theory of knowledge and metaphysics, and he has been true to his promise, as we judge, critically to discuss and not summarily to dispose of the opinions of others. *μκρκ.*

EINE NEUE DARSTELLUNG DER LEIBNIZISCHEN MONADENLEHRE AUF GRUND DER QUELLEN. By *Eduard Dillmann.* Leipsic: O. R. Reisland, 1891.

The author is an admirer of Leibnitz's monadology which he considers as "the most beautiful, most perfect fruit of philosophic thought and the most glorious system to be found in the history of philosophy." This enthusiasm however is not shown in panegyrics but in a careful investigation of the great master's work and we should scarcely know the attitude of the author toward the philosopher whose thoughts he discusses, if he did not give vent to his feelings in a few sentences of the concluding chapter. The rest of the book consists of purely critical and historical studies by a sober and cool-headed scholar. Leibnitz's system as it is represented in our histories of philosophy and as it is currently conceived lacks a unitary and leading idea, so that many of its most fundamental propositions appear to be at variance. Mr. Dillmann maintains that Leibnitz's philosophy as it really is does not lack this unity; he has made an extensive and most diligent study of Leibnitz's works and proves with great plausibility through the assistance of many pertinent quotations the justice of his cause.

Leibnitz's monadology is according to Dillmann essentially a conciliatory system. It attempts to reconcile the world-conceptions of his time. The mechanical explanation of nature as it was proposed in modern times and according to which all processes should be conceived as motions of bodies is harmonised with the formalistic views of classical antiquity and of the schoolmen which seeks for the causes of all phenomena in substantial forms. In aiming at such a combination, he had to show that all single phenomena of bodies and also their qualities had some ground and that the principle of the body itself consisted in a substantial form. This led him to conceive of bodies and of all things not as phenomena of an external world but as representations in the mind, and thus an entirely new standpoint was gained (p. 511). Representations are the inner states of Monads (p. 318). Monads are substances because representations are units; for representations are the many expressed in a unity (p. 319). Every monad is a concentration of the universe (p. 313). It is as if God had multiplied the universe as often as there are souls (p. 314). Every substance is a little world in itself, expressing the great world of the universe. The substance imitates in its little world what God does in the universe (p. 313).

Leibnitz's God-idea has suffered most from a misconception of the fundamental idea of his system. Dillmann declares that the traditional view, especially Fischer's, is in conflict with the philosopher's own words. While Fischer says that Leibnitz's God has created the substances and arbitrarily endowed them with their natures, Dillmann maintains on the ground of ample quotations that Leibnitz considers the

forms of all possible existences as given : not even God can alter them. God however can and did compare all possible worlds, and then created that which his wisdom found to be the best world. "God," says Leibnitz, "does not select a general Adam, but such a one," i. e. an individual Adam, "whose perfect representation is found among all the possible beings which exist in the ideas of God. The nature of every creature is determined by eternal truths which are in the understanding of God independent of his will." "God's decree consists alone in the decision arrived at after having compared all possible worlds and having admitted into existence that one which is the best of all." κρς.

LEITFADEN DER PHYSIOLOGISCHEN PSYCHOLOGIE IN 14 VORLESUNGEN. By Dr. *Th. Ziehen*, Docent in Jena. Mit 21 Abbildungen im Text. Jena : Gustav Fischer. 1891.

The merits of these 14 lectures on physiological psychology are thoroughness, lucidity, and conciseness ; the whole book is a pamphlet of 174 pp. only. The method of presentation is in all its detail work positive, stating the facts as they have been found to be by experience and as they are corroborated by experiment. Upon the whole it is a good résumé of the present state of knowledge. A translation would be very desirable and it is to be hoped that some of our psychologists will undertake the work.

The contents are briefly as follows : I. Contents and scope of psychology. II. Sensation, association, action. III. Stimulus, sensation. IV. Taste, smell, touch. V. Hearing. VI. Vision. VII. Affective aspect of sensation (pleasure and pain). VIII. Sensation, memory, concept. IX. Association of ideas. X. Judgment and syllogism. XI. Attention, voluntary thought, the ego (Ziehen says : "psychologically considered the simple ego is a theoretical fiction," p. 139). XII. Diseased thinking, sleep, hypnosis. XIII. Action, expressive motions, language. XIV. Will, general conclusions.

Although Dr. Ziehen's pamphlet is upon the whole an excellent treatise, we cannot agree with the author in several questions which are of great importance in their consequences.

Dr. Ziehen acknowledges that the specifically nervous processes, a sensible stimulus and a reaction, which latter is a motory effect, cannot be explained from physical laws alone (p. 4). Yet at the same time he denies that the fact that the reflexes are adapted to a purpose *(Zweckmässigkeit)* proves the presence of a psychical-parallelism. "Pflüger," he says, "was wrong in attributing for this reason to the spinal cord a spinal-cord-soul." The *Zweckmässigkeit* of reflexes (i. e. their being adapted to a purpose) has originated not otherwise than the *Zweckmässigkeit* of the color of the bird's plumage, i. e. through natural selection and inheritance. This argument might be admissible, if we had not to account for the gradual origin of consciousness also. There was a time when our personal consciousness did not exist, and there was also a time when no conscious being lived upon the earth. Unless we assume

that consciousness suddenly appeared, creating out of its own subjectivity alone the objective world which appears to us as what we call matter in motion, we shall have to adopt some monistic view of the subject. To consider the psychical states as known and the objectivity of existence as utterly unknown is no monism.

Dr. Ziehen is opposed to the idea of psychical parallelism which he conceives to be dualism, but he proposes a spiritual monism in its stead, the difficulties of which he does not explain. It is to be regretted that Dr. Ziehen has not understood the main idea of the parallelism doctrine. He says in a foot-note (p. 6): "In the most extreme way, but with quite insufficient reasons Lewes has maintained the omnipresence of consciousness." This is a misstatement of Lewes's view, which by the bye is held by the reviewer also, although he confesses that the term parallelism is inappropriate and leads to misunderstandings. The theory of parallelism (at least as the reviewer holds it) is not dualistic but monistic. It implies that the subjectivity and objectivity of existence are two different abstractions of one and the same reality. Its parallelism is a parallelism of these two sets of abstraction, while the reality from which they have been derived is one throughout. There exist no subjects that are not objects to other subjects, and every object admits of a subjective aspect. There is a something supposed to be present throughout nature which under certain conditions appears as consciousness. This certain something is called by Clifford elements of feeling, by Lloyd Morgan metakinesis, it has been characterised in the editorials of *The Monist* as the subjectivity of existence, and the presence of this something in the spinal cord was called by Pflüger *Rückenmarksseele.*

It appears to me that if we could explain the well adapted reaction of nervous substance without assuming a psychical element in it, we could explain the whole process of evolution and the historical development of mankind, without the assumption of consciousness. Yet it is obvious that even the explanation of the color of the bird's plumage by the theory of natural selection and heredity presupposes the presence of psychical elements somewhere. Either the bird and his mates show a color sense, or his enemies do, whose persecution he escapes, or the animals upon whom he preys do. Man's entire existence, physical and psychical, including his feelings of pleasure and pain, can be explained by the theory of natural selection and heredity; yet this is no proof that psychical elements do not exist in him.

It has become customary at present to define "psychical" as that only which appears in states of consciousness, and to exclude subconscious and unconscious states. Dr. Ziehen says: "Everything given in consciousness and that alone is conscious" (p. 3). Yet he introduces after all the expression "psychically latent," "latent memory pictures," and similar expressions. Dr. Ziehen says, "We cannot even have a conception of that which an unconscious idea can be"; yet what is a latent memory-picture but an unconscious idea?

There are two kinds of unconscious ideas: (1) Latent ideas. Every man's brain is full of latent ideas, i. e. of memory-pictures which are at present unconscious but can become conscious at once if their activity is roused by an appropriate stimulus.

(2) Ideas unrelated to the centre of consciousness. Those active ideas which, although at present in a state of activity, are unrelated to the centre of consciousness that constitutes the ego of the man, remain unconscious. Unconscious cerebration (which takes place in dreams, in diseased brains and also in certain phases of healthy brains being, as it were, a by-play of their conscious activity) need not be destitute of feeling. Any pain may be lessened when our attention is called away from it. The nervous disorder remains the same, the feeling substance of the nervous structures in which the pain was perceived also remains the same, its activity and throbbing pulsations do not cease. Yet if we succeed in separating its immediate relation to the centre of consciousness it sinks down into subconsciousness. There is no reason for assuming that the feeling, no longer perceived, is wiped out entirely.

While Dr. Ziehen's pamphlet is a presentation of the results of positive science, we were astonished to find in the first chapter the following statement: "Later on we shall have to investigate whether there are for all psychical phenomena such material parallel processes in the central nervous system, and our answer will be decidedly in the negative." And again we find in the schedule of psychology a distinction between (*a*) psychical processes *not* contingent upon cerebral functions (transcendental psychology), and (*b*) psychical processes contingent upon cerebral functions (physiological psychology). These statements are the more perplexing as the author joins the opposition made by Münsterberg against Professor Wundt's idea of apperception, which is rejected as metaphysical, mystical, and even animistic. While we cannot in all points agree with Professor Wundt's theory of apperception which received a critical examination by Professor Delabarre (see *The Monist* II, No. 2, p. 297), we can most positively say that Dr. Ziehen in so far as he classes Wundt's view among the dualistic theories, misunderstands Wundt's position. Wundt's physico-psychical parallelism cannot be identified with the metaphysical fiction of a subject, be this subject called ego or soul.* Wundt says in a late publication of his: "Psychology of to-day, since Kant has shown the way, seeks the nature of the soul again, as did Aristotle of yore, in the facts of the spiritual life themselves and not in an unknowable 'thing in itself'. . . ." *Deutsche Rundschau* of 1891, p. 203. Wundt's "apperception" is no metaphysical being, but simply means the focus of perception, the centre of consciousness. Wundt is certainly not infallible and we are inclined to believe that in some details he is mistaken. He is nevertheless one of the very greatest leaders among the investigators of the soul and his monism as well as his antimetaphysical tendencies cannot be doubted.

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* Ziehen declares (p. 129) that the problem of physiological psychology consists in reducing the different forms of thinking up to the most complex argumentation to simple associations of ideas and its laws. Wundt says, that there are many psychical idea-combinations which cannot be explained simply by association of ideas. So, Ziehen continues (p. 130), Wundt assumes above idea associations a special faculty of the soul called apperception, which serves now as attention, now as will, but is in either case a metaphysical faculty of the soul, the active subject which independent of mechanical causality is said to be the cause of these phenomena.—I do not think that anyone who knows Wundt will accept this as a fair representation of his views.

Ziehen reaches his monism by considering objective existence, as it appears to us and which we call matter, as "something utterly unknowable." He says, "The "psychical series alone is given. . . . Thus the psycho-physical dualism or parallel-"ism is apparent only. Considering that the psychical series alone is given, we shall "understand, that we had repeatedly to face in our investigations such factors in "which the material foundations are missing. I here remind you of the projection "of our sensations into space and time, for which we could not find a psycho-phys-"ical explanation."

We hope that Dr. Ziehen will soon find occasion to explain his philosophical views. Such an explanation may throw light on his psychological theory. We do not as yet see how he can solve without inconsistency the many difficulties in which his philosophical standpoint will involve his psychology. *κρς.*

PSYCHOLOGIE DER SUGGESTION. By *Dr. Hans Schmidkunz.* Stuttgart, 1892,—pp. 425. Large 8 vo.

The rapidly increasing devotion to the study of Hypnotism has yielded many valuable results, both practical and theoretical. Its application to the cure of disease—psycho-therapeutics—has been most extensively introduced and bids fair to become the representative in scientific form of the germ of truth buried amongst the vast rubbish-heap of suspicious practices and pseudo-scientific "isms." New light has been thrown on the questions of responsibility and the legal aspects of slightly abnormal states. Education and ethics, it has been more than hinted, are to find practical aids in hypnotism; while in the light of modern scientifically recognised phenomena, many of the events influential in the development of religions find a rationalistic interpretation. But the science which more than all others, the study of hypnotism is destined to enrich, is that of Experimental Psychology; and it is this phase of the subject to which Dr. Schmidkunz has devoted his volume.

The central core of the whole subject is the fact of suggestion,—a fact so comprehensive that it is almost easier to say what it is not than what it is. If we make allowance for that portion of our conduct that is based upon individual acquisitions and proceeds by logically reasoned steps, all the rest is more or less the result of suggestions, of one kind or another. To appreciate the psychology of this process it is necessary to appreciate its varieties and universality. We receive suggestions from things and deeds; the sight of food makes us hungry; the sight of our neighbor consulting his watch induces a strong desire to know what time it is. Words are powerful implements of suggestion; we accept those doctrines that we hear about us and are influenced much more frequently than we are convinced. The personal factor in suggestion is important; to some we feel attracted and accept as leaders, while others excite repulsion and antagonism. The indirectness of the process of suggestion is to be noted; in most cases we are quite unconscious of the influences exerted upon us and by which our conduct is guided, and this ignorance of the motives of our acts, Spinoza tells us, is the cause of the illusion of free will. Sympa-

thy, imitation, the contagion of masses, the action of the mind upon the body, the formation of public sentiment,—all exemplify the process of suggestion and add their testimony to its power and domain.

We must recognise, too, that our suggestibility is a variable phenomenon; at some moments we are self-assertive and determined, at others passive and readily following another's lead. Sometimes we take the reins in our own hands, and again allow the vehicle to find its way as it will. Every night we pass into a condition in which conscious control is abandoned and logic gives way to suggestion. A trifling illness, a dose of medicine may increase our suggestibility, and place us in a position allied to that of the hypnotic subject. All this prepares the way for recognising as the distinctive characteristic of the hypnotic condition, an exaggerated suggestibility. Not alone is there a ready yielding to every suggestion of the operator, but functions normally not under volitional control may be appealed to and utilised by the slighter and subtler processes of hypnotic suggestion. The variable threshold between the voluntary and the involuntary is shifted to a surprising extent. That complex interrelation of centres with which the sense of personality is intimately connected yields to the same influences and makes possible an experimental study of this vexed problem.

This, then, is the Psychology of Suggestion, the contribution that Hypnotism makes to Psychology. It lays stress upon the great rôle this process plays in every day mental life and thus asks us to see in hypnotism a condition closely allied to the normal, and simply illustrating in an unusually striking way, one great factor in our mental composition. It rearranges the hierarchy of mental faculties and finds a more important place for suggestion than has been before accorded to it. From a somewhat obscure and sporadic phenomenon occasionally entering into mental states, it is raised to the dignity of one of the most frequent, most important, most fertile generalisations of scientific psychology. Whether one fully agrees with this position or not, it is certainly a service to have it so comprehensively, even if at times prolixly stated, and to be assured that the study of Psychology is deriving as much benefit from the researches in hypnotism as are the more practical sciences. J. J.

HYPNOTISME, SUGGESTION, PSYCHOTHEROPIE. Études Nouvelles par le *Dr. Bernheim*, Professeur à la Faculté de médécine de Nancy. Paris: 1891. Octave Doin., pp. 518.

The literature of the new science of Hypnotism continues to increase with unabated pace; most of the contributions consist of studies of a few cases or a brief exposition of a single point, in most cases of points relative to the application of hypnotism to disease. The present volume, however, is of special importance not alone because of the authority that Dr. Bernheim's name brings with it,—but because of the comprehensiveness and the skill and interest of the exposition. It is supplementary to Dr. Bernheim's former volume, "Suggestive Psychotherapeutics," (1886–87, English translation, 1889) and reflects the progress that has resulted from

continued and systematic observation. The therapeutic interest in it naturally finds most complete representation and about half the volume is devoted to the description of cases cured or benefited by suggestive treatment. Although nervous complaints predominate in these well arranged and well described cases, yet the method is shown applicable to all the ills that flesh is heir to. While this portion of the volume will be of greatest interest to the medical world, the psychologist will find most food for reflection in the first and more theoretical half of the book. He will find there an interesting historical sketch illustrating how processes similar to those now studied as hypnotism have been in use from ancient times; how all the various healers, and the various processes and agencies used by them, involve different modes of application of the one principle of suggestion. "It is the human imagination that works miracles."

Suggestion is defined as the act by which an idea is introduced in the brain and accepted by it, and thus many of the means by which one person influences another under every day, normal circumstances would be included in the term. Hypnotism is simply one of the most important and efficient methods of producing a state of increased suggestibility. In every day life we have abundant evidence of the tendency of ideas to be realised in actions; with every change in thought and emotion there is associated some motor expression, too subtle perhaps for analysis and description, but still present and significant. Under excitement and nervous strain these motor accompaniments of thought are increased and serve as the basis of the muscle reader's skill. Again the possibility of disbelief and of recognising the illusory character of a sensation involve the control of higher directing powers; the accumulated experience of the past passes sentence upon the new candidate. If we imagine a condition in which this form of control is abolished, we should have a subject accepting as real almost any idea or sensation that is suggested to him, and expressing freely and unreservedly his acceptance of the same. And this it is that hypnotism does. It builds upon the natural credulity which it is the difficult task of reason to shape and control, and brings into prominence the automatic, subconscious phases of mental action. It does not endow subjects with new faculties or deprive them of their individuality, but shows in a strangely perverted perspective the various faculties and processes that go to build the endlessly complex elements of a personality. This "suggestion" view of hypnotism is the contribution of the Nancy School, and is fast becoming the recognised view of science; one will nowhere find a clearer and more convincing exposition of it than in Dr. Bernheim's pages.

It is clearly impossible to summarise the various details that make up the body of the volume; but all the important topics are discussed and result in conclusions unusually free as well from vagueness as from narrowness. The processes inducing the state, the proportion of susceptible individuals, the various kinds and stages of hypnotism, its relation to sleep and other normal states, the rôle of memory in hypnotism, the interesting post-hypnotic, negative and retroactive hallucinations, its relation to hysteria, its possible use in crime,—these are some of the chief topics

treated. The volume is a valuable contribution to the literature of the subject, reflects its most recent acquisitions, and would well merit a presentation in an English translation. J. J.

HANDBOOK OF PSYCHOLOGY. In two volumes; Senses and Intellect, and, Feeling and Will. By *James Mark Baldwin*, M. A., Ph. D., Professor in the University of Toronto. New York : Henry Holt & Co., 1891.

These are two books diligently worked out, the former of 343, the latter of 397 pp. They cover almost the entire field of psychology excluding however the treatment of such abnormal states as are Mental Pathology and Hypnotism. The author is a disciple of Dr. McCosh, and is strongly influenced by Wundt, of Leipzig, and Rabier, of Paris; yet he has developed an independent view of the nature of the soul which perhaps comes nearest to that of Prof. William James, of Harvard. The two books are actually two parts of one work, the one complementing the other. The former however is not, as the name suggests, an exposition of the nature of the senses in their relation to or as the basis of the intellect; it is an inquisition into consciousness, sensation, perception, association, imagination, rational thought, and kindred subjects. The latter, after an introduction of 50 pp., characterising the mechanism of the nervous system, treats of feeling as sensation, as pleasure and pain, as interest and belief, as emotion, and passes over to the subject of a motor consciousness, or will, ending in a chapter on volition.

Professor Baldwin states that "after we enter consciousness we find a principle "of apperception to which there is no analogy in physiological integration," adding in a foot-note : "Since the section of the 'Unity of Composition' theory was written, "Professor James has published an acute criticism in substantial agreement with it, "and the passage quoted makes reference to the sixth chapter of Professor James's "Psychology in which he rejects the so-called 'mind-stuff,' theory, declaring a self-"compounding of mental facts to be inadmissible and proposes at last what he calls "soul-theory.'" Professor James in this chapter commits the mistake indicated in the editorial of the last number of *The Monist* (p. 248) that he considers things as things in themselves and then looks for a relation producing principle. He says:

"In the parallelogram of forces, the 'forces' themselves do not combine into "the diagonal resultant; a *body* is needed on which they may impinge, to exhibit "their resultant effect."

"Take a sentence of a dozen words, and take twelve men and tell to each one "word. Then stand the men in a row or jam them in a bunch, and let each think "of his word as intently as he will; nowhere will there be a consciousness of the "whole sentence."

Thus Professor W. James is in need of what he calls a "medium." He says:

"*All the 'combinations' which we actually know are* EFFECTS, *wrought by the "units said to be 'combined,'* UPON SOME ENTITY OTHER THAN THEMSELVES. With-"out this feature of a medium or vehicle, the notion of combination has no sense."

We observe that feelings which originate through the impressions of the outer world upon some sentient organism, enter into relations to each other, as naturally as things are in relations, or under certain circumstances will enter more closely into relations with each other. The "soul" accordingly is postulated by Professor James as a medium to combine the effects of the manifold brain processes in order to "escape the absurdity of supposing feelings which exist separately and then 'fuse "together' by themselves. The separateness is in the brain-world, on this theory, "and the unity in the soul world, and the only trouble that remains to haunt us is "the metaphysical one of understanding how one sort of world or existent thing can "affect or influence another at all." This is dualism and we suppose that Professor James is conscious of it. κρς.

Untersuchungen zur physiologischen Morphologie der Thiere. II. Organbildung und Wachsthum. By Dr. *Jacques Loeb*. Mit 2 Tafeln in Lithographie und 9 Figuren im Text. Würzburg: Georg Hertz. 1892.

Dr. Jacques Loeb formerly of Zürich and lately returned from the Zoological station at Naples has been appointed Professor at Bryn Mawr College, Pennsylvania. Former publications of his were reviewed in *The Monist* I, No. 2, p. 300. The present pamphlet is a continuance of his investigations in physiological morphology. Some of his experiments are made with *Antennularia antennina* (a hydroid polyp) and the author describes how without mutilation, simply by giving the creature a fixed position he succeeded in making it develop certain organs in certain places, thus proving gravitation to be an important factor in determining the growth of certain limbs. Dr. Loeb adds a few articles on the dependence of the longitudinal growth and also of the regeneration of Tubularia upon the concentration of the salt-water. His experiments with *Ciona intestinalis* (a solitary ascidia) prove that (1) a section in the side of the oral orifice as well as of the anus will cause the formation of ocelli on the margin of the section, (2) after an extirpation of the central nervous system the reflexes continue although with a higher threshold of the stimulus, and (3) the ciona is capable of developing the central nervous system again. κρς.

Das Dasein als Lust, Leid, und Liebe. Die altindische Weltanschauung in neuzeitlicher Darstellung. Ein Beitrag zum Darwinismus. Mit 2 Tondrucken, 24 Zeichnungen und 10 Tabellen. By Dr. *Hübbe-Schleiden*. Braunschweig: C. A. Schwetschke & Sohn, 1891.

The author of this book is Dr. Hübbe-Schleiden, editor of *The Sphinx*, a monthly magazine published in Germany which professes to "lay down historically and experimentally the supersensible World-Conception upon a monistic basis." Love of Mysticism is the main feature of *The Sphinx* as well as Dr. Hübbe-Schleiden's book. *The Sphinx* contains reports of cases of telepathy and is quite serious in investigating the spook of a haunted house. The present book contains the author's confession of faith. The symbols by which he depicts his world-con-

ception reveal a cabalistic taste, and we believe that the illustrations will be rather repugnant to the man of science, as they give the impression of fantasticism. The main idea of the book is to modernise the old Hindoo view that "Kama" desire or *Lust* is the ground of all being, as is said in the Brihad-Aranyaka Upanishad (IV, 4, 5): "Man consists entirely of desire (*Kama*); as is his desire, so is his will (*Kratu*); as is his will, so is his life (*Karma*, i. e., activity); as is his life, so is his fate."

Dr. Hübbe-Schleiden rejects the Hindoo view of a migration of soul in so far as it suggests the idea of something personal; he prefers to speak of a transformation of soul. This, he says, has been and it may be called "metaphysical Darwinism"; and we must confess that the nucleus of the idea touches the most vital point of all the problems of life. We cannot explain ethics and the ethical instinct of man without taking into consideration that man lives and aspires for something that will outlast his individual existence. The author says: "Why do you strive for something higher, for perfection, for completion or whatever your aim may be called? Why all that, if you imagine that your individuality has only this one life upon earth and you can realise only a very small part of what you strive for? Why all your trouble, if the main thing is in vain?" We agree with the author that our moral instinct, our ideals and aspirations which are most powerful realities in life point to a life beyond the grave, they indicate that death is no finality and evolution teaches us that our souls actually continue to exist. Our souls in their individual features are parts only of the whole evolution of our race and these very individual features of our souls can be and will be preserved in the future generations.

Dr. Hübbe-Schleiden's book is characteristic of a strange tendency of our time to combine the results of modern science with the old notions of occultism. There is in it a psychological and ethical truth overgrown with a fanciful imagination. κρς.

MAX MÜLLER AND THE SCIENCE OF LANGUAGE. A Criticism. By *William Dwight Whitney*, Professor in Yale University. New York: D. Appleton and Company. 1892.

The Professors W. D. Whitney and F. Max Müller are not on good terms. They do not only disagree on several fundamental and many minor points, concerning the science of language, but their warfare, as is well known, is at the same time of a personal nature. The present little volume is a criticism of the new edition of Max Müller's "Science of Language." The great Yale philologist recognising that this work of his antagonistic Oxford colleague "is still the principal and most authoritative text-book of that study," and noting that "its author has gained no new light from the criticisms that have been made upon his work," feels called upon to warn the reader that "it may not be trusted where it is untrustworthy and so do harm to the science which it was intended to help." The title of the book, according to Professor Whitney, ought to be "Facts and Fancies in Regard to Language and Other Related Subjects."

Schleicher says: "Languages are natural organisms which, without being de-"terminable by the will of man, grew and developed themselves in accordance with "fixed laws. . . . Its method is on the whole and in general the same with that of "the other natural sciences." Professor Whitney censures Max Müller for calling the first part of Schleicher's proposition "sheer mythology," and then adopting the inference made therefrom considering the science of language as a physical science. Now it is true that the expression "organism" must not be taken literally; languages are not animals or plants, but they have some quality that is comparable to animals and plants. Their life and the development of their life is in many respects analogous to the life of organisms. Professor Whitney regards language as "a body of conventional signs for ideas" and protests against Prof. Max Müller's usage of the word "conventional" as if it implied "a convention of people gathered to discuss and decide on the words and forms by which conceptions should be represented." In contradistinction to Max Müller who holds that philology is a physical science, Professor Whitney regards it as an historical science. "Physical science," says Max Müller, "deals with the works of God, historical science with the works of man." Thus optics is a physical science, painting an historical science. Whitney declares that individuals initiate changes and the community either accepts and uses them, making them language by its use or rejects and annuls them by refusing to use them. In one word Max Müller says language is φύσει, a product of nature, and Whitney says it is θέσει, an institution of man. We believe that Professor Whitney stands almost alone in his conception of language.

Another no less important point is Professor Whitney's objection to Prof. Max Müller's proposition of the Identity of Language and Thought. Here Professor Whitney will find many supporters for his case; but we must add that Prof. Max Müller does not exactly mean what he says. He means by identity inseparableness. It is not so much Max Müller's position that should be attacked as his misleading terminology. Concerning the origin of language Professor Whitney finds an instructive parallel in the beginnings of writing which were mutually intelligible signs, or in the written language of mathematics. "So we do no longer see," he says, "the two and three strokes in our figures 2 and 3, although they are really there disguised from view." This is a good simile, and undoubtedly *cum grano salis* true. But it is rather strange that Professor Whitney should find Noiré's theory of the origin of language "utterly fantastic."

These are fundamental differences. There are some more, less important points such as the etymology of king being the Sanskrit *janaka*. Max Müller proposes a very improbable reason for the change of meaning in the Lat. *fagus*, O. Germ. *boka* (beech), Greek *phegos*, Lat. *quercus*, and Germ. *foraha* (fir). Professor Whitney might have mentioned that a more probable reason for this change has been proposed of late by those who seek the home of the Aryans in Europe. A migrating people would naturally have called in their old home the beech, in their new the oak "a tree with edible fruit." The same method is applicable to explain the change

of meaning in *forah-a-quercus* which means in northern countries a fir and in Italy an oak.

Professor Whitney sums up his case as follows (p. 77): he finds "language "study . . . . declared on transparently false grounds, to be a physical science, and "language an existence which man had no part in making and changing; dialectic "growth misunderstood, families of language regarded as exceptional, and a 'Tu-"ranian' barathrum arranged to catch all little-known varieties of speech; antece-"dent unity of dialect taught in one case and denied in another; a word held to be "killed by the least mispronunciation; *conventional* explained to mean 'voted by a "convention'; thought and its expression viewed as inseparable, and even identical; "the origin of language seemingly ascribed to an instinctive ding-dong of the tongue "—and so on; to complete the list would be almost to give a table of principal con-"tents of the two volumes—and a style of discussion used throughout which indi-"cated that the author was playing with his subject rather than investigating it "seriously. . . . . The book is not science, but literature. Taken as literature, it is "of high rank, as the admiration of the public sufficiently testifies; its author has "a special gift for interesting statement and illustration, for lending a charm to the "subjects he discusses; and he carries captive the judgments of his hearers and of "many of his readers. He is a born *littérateur*."

Professor Whitney concludes: "Now as heretofore, I rest my defense on not "the just intent alone, but the real substantial justice of my criticisms; if they are "unfounded, I deserve reprehension for making them; if they are right, then there "is nothing, either in the degree of importance of the subjects to which they relate, "or in the personality against whom they are directed, to call for their condemna-"tion." κρς.

Seifenblasen. Moderne Märchen. By *Kurd Lasswitz*. Hamburg and Leipsic: Leopold Voss. 1890.

"Märchen," in the province of science, we are inclined to believe are a prize problem for our modern poets. Who will solve it? Kurd Lasswitz has made an attempt and considering the great difficulty of the problem, we are not inclined to criticise him. The author, who has worked in scientific fields and has proved his ability as a close student, exhibits in these "soap-bubbles" a fertile imagination and poetic invention. Most of his sketches fall short of the ideal märchen of science as we conceive it, but their reading is suggestive and deserves the attention of those whose disposition favors the creation of a middle ground between science and poetry.

κρς

PERIODICALS.

REVUE PHILOSOPHIQUE.

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UN PROBLÈME D'ACOUSTIQUE PSYCHOLOGIQUE. By *L. Dauriac.*

LES ORIGINES DE NOTRE STRUCTURE INTELLECTUELLE ET CÉRÉBRALE. II. L'ÉVOLUTIONNISME. By *A. Fouillée.*

LÉONARD DE VINCI ARTISTE ET SAVANT. By *G. Séailles.*

SUR LES DESSINS D'ENFANTS. By *J. Passy.*

SUR UN CAS D'INHIBITION PSYCHIQUE. By *A. Binet.*

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LE PROBLÈME DE LA VIE. By *Dunan.*

LA MALADIE DU PESSIMISME. By *B. Perez.*

PHILOSOPHES ESPAGNOLS DE CUBA: F. VARELA, J. DE LA LUZ. By *J.-M. Guardia.*

VARIÉTÉS: LE PROBLÈME D'ACHILLE. By *J. Mouret.*

CONTENTS: February, 1892. No. 194.

LES MOUVEMENTS DE MANÈGE CHEZ LES INSECTES. By *A. Binet.*

LE PROBLÈME DE LA VIE (2nd article). By *Dunan.*

PHILOSOPHES ESPAGNOLS DE CUBA (concluded). *J.-M. Guardia.*

REVUE GÉNÉRALE: JUSTICE ET SOCIALISME, D'APRÉS LES PUBLICATIONS RÉCENTES. By *Belot.*

One of the problems of the unique and great work of Carl Stumpf's "Tonpsychologie" is the subject of L. Dauriac's essay. The question is when several sounds enter the ear at the same time, the plurality of which is not directly known, do you have your information through an inner sense? Does every unit of the irritation correspond to a distinct unit of sensation? Is there in consciousness a simultaneousness of sensations similarly as outside of consciousness there is a simultaneousness of vibrations? M. Dauriac maintains that Stumpf's question can be answered only on the ground of metaphysical postulates, and if preconceived solutions are to be excluded, it must be considered as insoluble.

Alfred Fouillée, in his second article on the origin of our intellectual and cerebral structure, which treats on evolutionism, comes to the conclusion that the hypothesis which in the most simple way explains the agreement of thoughts and objects is the doctrine of a radical unity generally called Monism.

J. Passy notes certain characteristic and psychologically interesting features of the drawings of children.

M. A. Binet presents two physiognomical pictures of the same face, one representing disgust or scorn, the other a good-humored and happy smile. The upper parts of both faces are exactly alike and yet the eyes of the former look disdainful while the very same eyes of the latter are full of jest and merriment. This is the fact. M. Binet psychologically interprets the fact as a phenomenon of automatic inhibition. The fact is interesting, but its interpretation seems doubtful.

Charles Dunan discusses the metaphysical aspect of the problem of life.

B. Perez's article is a contribution to pathological psychology with special reference to M. Magalhâes's work on the subject. Pessimism, M. Perez says, is a disease only if exaggerated, yet he believes that medico-psychological studies which consider the relation between the physical system and morality are very helpful even if carried too far.

M. J.-M. Guardia's article will have a special interest for Americans. Three men arose in Spain of late, Valentin Almirall, M. L. Mallada, and J.-M. Escudor, who spoke bold and hard words of truth to their country. Cuba is the hen that lays golden eggs for Spain, but the Cubans are treated with great contempt in Spain; and yet the Spaniards are by no means their intellectual superiors, for while Spain is poor in philosophy, Cuba is the only country of Latin America where philosophy has taken root. M. Guardia sketches in the first article the history and philosophy of Don Félix Varélay y Moralès who is the harbinger of the other Spanish-Cuban philosopher, José de la Luz. The second article in the February number treats of the latter (1800–1862) whom Guardia calls the master.

George Mouret with reference to Frontera's book on Zeno's argument against motion makes a few remarks concerning the Eleatic sophism about Achilles and the tortoise.

An injury of a thalamus opticus produces in horses and other animals the effect of their making rotatory movements when intending to walk straight on. Forell proved that a similar effect is produced in ants by a lesion of one of their lobes. M. Binet publishes in the present essay his experiments on certain water-beetles, exhibiting diagrams of their normal and abnormal walk. (Paris: Félix Alcan.) *κρς.*

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Vols. II and III.

CONTENTS: November, 1891. No. 6.

Ueber Brückes Theorie des körperlichen Sehens. By Dr. *C. du Bois-Reymond.*

Mein Schlusswort gegen Wundt. By *C. Stumpf.*

Erwiderung. By *O. Flügel.*

Litteraturbericht.

CONTENTS: December, 1891. No. 1.

Versuch, das psychophysische Gesetz auf die Farbenunterschiede trichromatischer Augen anzuwenden. By *H. v. Helmholtz.*

Untersuchungen über binokulares Sehen mit Anwendung des Heringschen Fallversuchs. By Dr. *Richard Greeff*

Bemerkungen zu dem Aufsatze von Dr. Sommer "zur Psychologie der Sprache." By Prof. *A. Pick.*

Litteraturbericht.

Dr. C. du Bois-Reymond believes that corporeal vision is either produced by one eye running in succession over several places or two eyes viewing two aspects of the object. Mach's theory of the influence of shade upon the production of the third dimension in vision which affords quite a new and a better explanation of the phenomenon is not mentioned. Stumpf closes his controversy with Wundt with a few remarks in answer to Wundt's reply (in *Philos. Studien* VII, pp. 298–327); and Flügel objects to Professor Rehmke's proposition made in a criticism of Flügel's book "Die Seelenfrage," that Herbart's psychology, being atomism, is at bottom materialism.

Dr. Richard Greeff describes Hering's apparatus for investigating the cause of binocular vision. Wheatstone believes that the perspective of the two retina pictures produces the effect of corporeality while Brücke declares that it is mainly due to muscle-sensations. Hering sides with Wheatstone, and the experiments as described by Greeff prove that the third dimension is unfailingly perceived whenever the ocular axes diverge, while in other cases the same result is not attained.

Dr. Sommer had presented in a former article the facts of an interesting case of aphasia, (see *The Monist*, Vol. I, No. 4, p. 629) where the patient, his name is Voit, could remember and pronounce words only when writing them. Prof. A. Pick objects to Dr. Sommer's regarding the case as contrary to our present experience and following two French authorities Ballet and Bernard, adduces cases of Aphasia by right-sided hemiphlegia where patients could read only when they were able to write or represent to themselves the writing motions of their hand. Thus one patient of Charcot could only read print, and not written words "because," as he said, "it was easier for him to reproduce in his mind the written letter." This reminds one of the case a deaf-mute who said: "I feel whenever I think of the motions of my fingers although they are pertectly at rest. I see internally an image of my moving fingers." Professor Pick concludes that the case Voit is a good argument against Max Müller's proposition of the identity of language and thought. Max Müller however includes in his conception of word any symbol of an idea. The finger motion of a deaf-mute is a word, and the writing motion of Voit is also a word, according to Professor Max Müller's theory.

Prof. H. v. Helmholtz publishes the tables of his experiments in applying the psycho-physical law upon color differences of trichromatic eyes, and presents the three fundamental colors diagrammatically in an equilateral triangle in the centre of which lies white. A curve winding round this centre shows the relation of the rainbow spectrum in the system of three fundamental colors. The results do not as yet agree with the investigations of A. König and C. Diterici who make similar inquiries with bichromatic eyes. (Leipsic: O. R. Reisland.) *κρς.*

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Vol. XVI. No. 1.

CONTENTS:

Beiträge zur Logik. (Erster Artikel.) By *A. Riehl.*

Die Dimensionen der Wahrscheinlichkeit und die Evidenz der Ungewissheit. By *Ad. Nitsche.*

Ueber die fortschreitende Entwicklung des Menschengeschlechts. II. By *F. Rosenberger.*

Ernst Platner's wissenschaftliche Stellung zu Kant in Erkenntnisstheorie und Moralphilosophie. I. By *B. Seligkowitz.*

Ueber Sprachreflex, Nativismus und absichtliche Sprachbildung. X. By *A. Marty.*

Prof. A. Riehl begins in this number a series of articles on logic. The first two chapters are (1) concepts and definitions. Riehl distinguishes between a definition and a predicating sentence *(Aussage)*, for instance, "Space has three dimensions," is a mere definition, but "Space is the form of our intuition," is an *Aussage.* (2) Conceptual sentences and judgments. The former are merely representative and cannot as the latter be said to combine or separate ideas.

Ad. Nitsche criticises Johannes v. Kries's idea that the calculus of probabilities is admissible only if the chances are equivalent. Equivalent chances *(gleiche Spielräume)*, he objects, are apparently impossible, yet he admits that upon the degree of a knowledge of the conditions will depend the reliability of the probability.

The object of B. Seligkowitz's article is to rescue from oblivion a philosopher who especially as a critic of Kant deserves to be better known than he is, Ernst Platner (1744–1818.)

The tenth and concluding article of A. Marty on the origin of language reviews Paul Regnaud's work *Origine et philosophie du langage.* (Leipsic: O. R. Reisland.)

κρς.

THE AMERICAN JOURNAL OF PSYCHOLOGY. December, 1891. Vol. IV. No. 2.

CONTENTS:

A Sketch of the History of Psychology Among the Greeks. By *Charles A. Strong.*

Studies from the Laboratory of Experimental Psychology of the University of Wisconsin. By Prof. *Joseph Jastrow*, Ph. D.

The Size of Several Cranial Nerves in Man as Indicated by the Areas of Their Cross-Sections. By *Henry H. Donaldson*, Ph. D.

Visualisation as a Chief Source of the Psychology of Hobbes, Locke, Berkeley, and Hume. By *Alexander Fraser*, B. A.

Anatomical Observations on the Brain and Several Sense-Organs of the Blind Deaf-mute, Laura Dewey Bridgman. II. By *Henry H. Donaldson*, Ph. D.

Psychological Literature. I. Nervous System. By Prof. *H. H. Donaldson.*

A Laboratory Course in Physiological Psychology. II. By *E. C. Sanford.*

Psychiatry. Psychoses Following Acute Surgical and Mental Affections and in Multiple Neuritis. By *William Noyes*, M. D.

The post mortem examination of Laura Bridgman shows "a brain in which the olfactory bulbs and nerves, the optic nerves, the auditory nerves, and possibly the glossopharyngeal, had all been more or less destroyed at their peripheral ends. This destruction caused a degeneration—most marked in the optic nerves—which

extended towards the centres and involved them indirectly. . . . This case represents a maximum loss in these defective senses with a minimum amount of central disturbance, thus offering the very best sort of opportunity for education by way of the surviving senses. . . . Mental association was for Laura Bridgman limited to various phases of the dermal sensations and the minor and imperfect senses of taste and smell. . . . The motor centre there had lost some, but not all its associative connections." (Clark University, Worcester, Mass.) κρσ.

INTERNATIONAL JOURNAL OF ETHICS. January, 1892. Vol. II. No. 2.

CONTENTS:

THE ETHICAL ASPECTS OF THE PAPAL ENCYCLICAL. By *Brother Azarius*.
THE THREE RELIGIONS. By *J. S. Mackenzie*, M. A.
THE ETHICS OF HEGEL. By *Rev. J. Macbride Sterrett*.
A PALM OF PEACE FROM GERMAN SOIL. By *Fanny Hertz*.
AUTHORITY IN THE SPHERE OF CONDUCT AND INTELLECT. By *Prof. H. Nettleship*, Oxford.
DISCUSSIONS AND REVIEWS.

Brother Azarias paraphrases and praises the ethics of the Papal Encyclical. J. S. Mackenzie starts from Kant's famous remarks that two things fill our minds with reverence, the starry heavens above and the moral law within. The worship of these two separately and the worship of them in combination are set forth as the three great religions of the world. Fanny Herts pleads for the abolishment of war. She quotes largely from Bertha Suttner's novel, "Die Waffen nieder," and from Friederich's letters. Authority, according to Professor Nettleship, is "the power which in the sphere of conduct, in the long run determines our practice and in the sphere of intellect in the long run determines our assent." There are roughly speaking four kinds of authority: (1) the authority of law, (2) the authority of religious bodies, (3) the authority of society or public opinion and (4) the authority of great men. Where is the seat of authority? "For each individual," Professor Nettleship maintains, "the absolute guide can, in the long run be no other than his own conscience." The origin of conscience and the criterion whether the voice of conscience be true or not are not explained. (Philadelphia: *International Journal of Ethics*, 118 S. Twelfth Street.) κρς.

MIND. New Series. No. 1. January, 1892.

CONTENTS:

PREFATORY REMARKS. *The Editor*.
THE LOGICAL CALCULUS. (1) General Principles. By *W. E. Johnson*.
THE IDEA OF VALUE. By *S. Alexander*.
THE CHANGES OF METHOD IN HEGEL'S DIALECTIC. (1) By *J. Ellis McTaggart*.
THE LAW OF PSYCHOGENESIS. By *Prof. C. Lloyd Morgan*.
DISCUSSIONS: The Feeling-Tone of Desire and Aversion. By *Prof. H. Sidgwick*. Sur la Distinction entre les Lois ou Axiomes et les Notions. By *George Mouret*.
CRITICAL NOTICES.

W. E. Johnson says: "As a material machine is an instrument for economising "the exertion of force, so a symbolic calculus is an instrument for economising

"the exertion of intelligence. And, employing the same analogy, the more perfect "the calculus, the smaller would be the amount of intelligence applied as compared "with the results produced." He continues:

"But as the exertion of *some* force is necessary for working the machine, so "the exertion of *some* intelligence is necessary for working the calculus."

Here we feel inclined to stop our author. That which makes of a certain amount of metal, brass, and wood a machine, is the form in which they are composed, and this form is instrumental in using a certain amount of energy for doing a certain kind of work. Intelligence is not analogous to force but to the form of force. Not intelligence is necessary to run the instrument of intelligence, but some power, some force, some energy, and this power needed for running the instrument of intelligence, as it exists in man, is generally called will. So we are at variance with Mr. W. S. Johnson from the outset. Mr. Johnson from his standpoint considers it "important to examine the kind and degree of intelligence that are de- "manded in the employment of any symbolic calculus. It will appear that the "*logical* calculus stands in a unique relation to intelligence; for it aims at exhibit- "ing, in a non-intelligent form, those same intelligent principles that are actually "required for working it."

We abstain here from discussing the details of this highly suggestive article which contains much that is of interest to logicians. The author claims especially with regard to his interpretation of the universal and particular that his results exactly correspond with the interpretation given by Dr. Venn and Mr. Peirce, and worked out by Dr. Keynes.

The Germans distinguish between *Urtheil* and *Beurtheilung*, the first being judgment in general, the latter a judgment that declares something to possess value from the view of truth, beauty or goodness. In this sense Mr. S. Alexander deals with the idea of value. He states two main principles (1) That value is "the efficiency of a conscious agent to promote the efficiency of society" and this, the author says, was maintained indirectly in opposition to the view that value was determined by pleasure. (2) That value is itself no something separable from other mental facts by a wide gulf, but was itself a fact of a purely natural order. "Sollen" is one kind of "Sein."

Mr. J. Ellis McTaggart in discussing the changes of method in Hegel's Dialectic arrives at a conclusion which according to the author must be admitted to be quite un-Hegelian. Hegel apparently regarded the procession of the categories with its advance through oppositions and reconciliations as presenting absolute truth. From this the author dissents, "for," he says: "the true process of thought is one "in which each category springs out of the one before it, and not by contradicting "it, but as the expression of its deepest nature, while it, in its turn, is seen to have "its deepest reality in again passing on to the one after it. There is no contradic- "tion no opposition, and consequently no reconciliation. There is only develop- "ment, the rendering explicit what was implicit, the growth of the seed to the "plant. In the actual course of the dialectic this is never attained. It is an ideal "which is never quite realised, and from the nature of the case never can be quite "realised. In the dialectic there is always opposition, and therefore always recon- "ciliation. We do not go straight onward, but more or less from side to side. It "seems inevitable, therefore, to conclude that the dialectic does not completely and "perfectly express the nature of thought."

Prof. C. Lloyd Morgan starting from the proposition that "the business of consciousness is the control of action" shows that "we identify ourselves rather with

"the action of our control centres than with our lower animal instincts. Through "experience we learn, and habits being formed by individual repetition become in- "nate." Professor Morgan reviews use-inheritance natural selection, sexual selection, the law of beauty, and conduct and verification with regard to psychogenesis. "Our nature," he says, "is intellectual, æsthetic, moral, and sensitive":

"The false is rejected as incongruous to our nature as intellectual; the ugly is "avoided as incongruous to our nature as æsthetic; the wrong is shunned as incon- "gruous to our nature as moral; so is the painful, so far as possible, avoided as "incongruous to our nature as sensitive. . . . The guidance of pleasure and pain is "of great importance—so great that some are found to argue that in moral matters "we are influenced solely by considerations of happiness. . . . Only by extending "the meaning of the words pleasure and pain so as to be coextensive with what I "have here termed congruous and incongruous can it be said that our actions and "our thoughts are determined by pleasure and pain." (London: Williams & Norgate.)

κρσ.

THE PHILOSOPHICAL REVIEW. Vol. I, No. 1. January, 1892.

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THE CRITICAL PHILOSOPHY AND IDEALISM. By Prof. *John Watson.*
PSYCHOLOGY AS SO-CALLED "NATURAL SCIENCE." By Prof. *George T. Ladd.*
ON SOME PSYCHOLOGICAL ASPECTS OF THE CHINESE MUSICAL SYSTEM. By *Benj. Ives Gilman.*
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PSYCHOLOGY, EPISTEMOLOGY, AND METAPHYSICS. By Prof. *Andrew Seth.*
A PLEA FOR PSYCHOLOGY AS A "NATURAL SCIENCE." By Prof. *William James.*
ON SOME PSYCHOLOGICAL ASPECTS OF THE CHINESE MUSICAL SYSTEM. II. By *Benj. Ives Gilman.*
DISCUSSIONS: Dr. Münsterberg's Theory of Mind and Body and its Consequences. By *Charles A. Strong.*
REVIEWS OF BOOKS AND SUMMARIES OF ARTICLES.

This is a new magazine which will be an additional proof that the philosophical interest in America is by no means so poor as the inhabitants of the old world generally suppose it to be. The character of the journal, it is to be expected, will be in harmony with the publications of its scholarly editor, Prof. J. G. Schurman, whose position is clearly set forth in a little volume of his "Belief in God," in which he conceives God in three ways (1) as the cause or ground of the world (2) as the realising purpose of the world, and (3) as the father of spirits.

Professor Watson reviews in an elaborate article Edward Caird's work "The Critical Philosophy of Emanuel Kant." "The philosophy of Kant," says Watson, "was accepted at first by submissive disciples, but it had afterwards to submit to a severe process of criticism which culminated in the Absolute Idealism of Hegel. The synthesis of Kant, as based upon an untenable opposition of the phenomenal and the real, was weighed and found wanting. . . . We must be grateful to any one who helps us, not merely to see Kant, but to see beyond him. This is the task which Professor Caird, in his exhaustive work on the Critical Philosophy, has set

himself to perform," and adds Watson, "he has done it in a way that leaves nothing to be desired."

Professor Ladd criticises Professor James's Psychology as so-called natural science.

"What we wish to have in the name of cerebral psychology, is a description, in terms of a comprehensible theory of molecular physics; and, also, a statement of the formulæ which define the relations between the molecular changes and the 'corresponding' orders of mental phenomena. But this is precisely what Professor James avoids doing, even to the extent which so-called 'nerve-physiology' makes possible. And, nothing worthy of the name 'science' *is* possible for any one in this branch of cerebral psycho-physics."

Professor James replies to the criticism in the second number of *The Philosophical Review*. He says:

"Psychology is to-day hardly more than what physics was before Galileo, what chemistry was before Lavoisier. It is a mass of phenomenal description, gossip, and myth, including, however, real material enough to justify one in the hope that its study may become worthy of the name of natural science at no very distant day. I wished, by treating Psychology *like* a natural science, to help her to become one."

Professor Ladd is a transcendentalist and Professor James has great expectations of the work inaugurated by the Society for Psychical Research.

Theoretically they stand much nearer than practically, as well indicated by Professor James's remark:

"In Professor Ladd's own book on 'Physiological Psychology,' that 'real being, proceeding to unfold powers that are *sui generis*, according to laws of its own,' for whose recognition he contends, plays no organic part in the work, and has proved a mere stumbling block to his biological reviewers."

He adds in a footnote:

"I mean that such a being is quite barren of particular consequences. Its character is only known by its reactions on the signals which the nervous system gives, and these must be gathered by observation after the fact. If only it were subject to successive reincarnations, as the theosophists say it is, so that we might guess what sort of a body it would unite with next, or what sort of persons it had helped to constitute previously, those would be great points gained. But even those gains are denied us; and the real being is, for practical purposes, an entire superfluity, which a *practical* psychology can perfectly well do without."

Andrew Seth, the well-known coryphæus of philosophy and psychology at Edinburgh, presses the importance of distinguishing the different standpoints of psychology, epistemology, and metaphysics. Locke, Berkeley, Hume and other English as well as Continental thinkers "speak sometimes from one point of view, sometimes from the other without being aware that the two points of view are different."

"Psychology, assuming the existence of a subject or medium of consciousness, seeks to explain, mainly by the help of association or processes practically similar, how out of the come-and-go of conscious states, there are evolved such subjective facts as perceptions, the belief in an independent real world, and the idea of the Ego or subject himself. . . . Metaphysics has to do with the ultimate nature of the reality which reveals itself alike in the consciousness which knows and the world which is known. . . . The epistemological thing-in-itself to be identified with the metaphysical essence. . . . The problem of knowledge and the Real, is the question which Epistemology has to face." (Boston, New York, Chicago: Ginn & Co.) κρς.

VOPROSUI FILOSOFII I PSICHOLOGII.* Vol. III. No. 11. January, 1892.

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Criticism and Bibliography. Review of Russian and Foreign Periodicals. Book Reviews. Bibliographical Index of recent Philosophical works. Answer to an anonymous letter received by N. Strachoff on the subject of his article: "Opinions concerning L. N. Tolstoï." By *N. Strachoff.* Transactions of the Moscow Psychological Society. (Moscow, 1892.)

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* *Questions of Philosophy and Psychology.*

VOL. II. JULY, 1892. NO. 4.

THE MONIST.

OUR MONISM.

THE PRINCIPLES OF A CONSISTENT, UNITARY WORLD-VIEW.

THE question, What are the essential features of Monism? was brought home to me when I read in the last number of *The Monist* the critical remarks made with reference to the new edition of my "Anthropogeny." I shall here endeavor briefly to draw up the outlines of my conception of the world in a manner which will indicate the most characteristic features of my views. Thus both the agreements with and the divergences from the position editorially upheld in *The Monist* will plainly appear.

As is the case with the majority of philosophical differences, so also in the present instance I find that the divergences which exhibit themselves in our respective unitary conceptions of the world are in part only apparent and in part occasioned by the divergent significances of our fundamental ideas. But this will, perhaps, be made clearer by the following methodically arranged eight theses.

I. MONISM.

Like all general concepts of fundamental scope, that of monism also is liable to different definitions and divergent modifications,—the natural result of individual differences of subjective conception. In the determinate sense in which monism is at present employed by the majority of philosophers and physical in-

quirers, the sense which I believe I was the first to establish in 1866 in my "General Morphology" (Vol. I, p. 105), it denotes a unitary or *natural* conception of the world, in opposition to a *supernatural* or mystical one, that is, in opposition to *dualism*. For us, accordingly, there exists (in the sense of Goethe) *no* opposition whatsoever between nature and mind, between World and God. Mental existences, "spirits," outside nature, or in opposition to nature, do not exist. What are commonly termed the "mental sciences,"—for example, philology, history, and philosophy,—are in reality simply a part of *physical philosophy*, of *Natur-philosophie*. The latter discipline embraces, in our opinion, the entire body of human knowledge; it is based upon *empiricism*, on the experiences, the observations, and the experiments of physical inquiry; but it does not become *philosophy* until it has brought together and united its empiric products, abstracted general laws from its isolated experiential facts, and *synthetised* the isolated results which *analysis* has empirically ascertained.

II. MECHANICALISM.

Since an early date, this important fundamental concept has frequently been used in three different and divergent senses, namely:

A. In its widest sense, as synonymous with *monism;* wherein mechanical causes (*causae efficientes*), in the sense of Kant, are assumed as the sole effective causes and are placed in opposition to the teleological causes (*causae finales*) in the sense of dualism. "Mechanical conception of the world" is in this sense synonymous with "monistic conception of the world."

B. In its more restricted sense, as a universal *motion*-principle of physics, so that, for example, the postulated ether-vibrations of optics, of electricity, and so forth, as well as the grosser material oscillations of acoustics, heat, and so forth, are designated as mechanical processes subject to definite laws. "Mechanical natural philosophy," in this sense, is identical with *physics*.

C. In its narrowest sense, as that *branch* of physics which deals with the grosser and visible processes of *motion;* as gravitation, locomotion, and the phoronomy of organisms. Mechanics, in this

the most restricted sense, is viewed as opposed to optics, acoustics, etc.; as the usages of the schools indicate.

Since, now, the phrases "mechanical laws" and "mechanical explanation," at the present day even, are frequently understood in these three distinct senses, no end of misunderstandings arise. Such misunderstandings may be best avoided, perhaps, by retaining the notion of mechanics in its narrowest (*C*) sense, and by substituting *physics* for the next narrower sense (*B*) and *monism* for its most extended sense (*A*).

III. PSYCHISM.

In exactly the same way as the idea of mechanicalism, so also that of psychism is employed in a three-fold divergent sense. As in the former case *motion*, so here *feeling* is conceived, now as a universal world-principle, now simply as a vital activity of all organisms, now simply as the particular mental activity of man.

A. In its widest sense: *Panpsychism*. All matter is ensouled, because all natural bodies known to us possess determinate chemical properties, that is to say react uniformly and by law when subjected to the determinate chemical (i. e. molecular-mechanical) influences of other bodies: *chemical affinity*. Simplest example: sulphur and quicksilver rubbed together form cinnabar, a new body of entirely different properties. This is possible only on the supposition that the molecules (or atoms) of the two elements if brought within the proper distance, mutually *feel* each other, by attraction move towards each other; on the decomposition of a simple chemical compound the contrary takes place: repulsion. (Empedocles's doctrine of the "love and hatred of atoms.")

B. In its more restricted sense: *Biopsychism*. The *organisms* alone are regarded as "ensouled," because here the chemical processes are more complicated and more striking (producing motions in cyclically repeated succession) than in the case of the so-called "dead matter" of the inorganic bodies. In particular does organic "irritability" appear here as a higher form of the physical reaction called "*Auslösung*" [the setting free, disengagement], and "soul-activity" (reflexes) again as a higher form of irritability. However, all the phenomena of organic life ultimately admit of

being reduced to "mechanical" (or "physico-chemical") processes that differ from the processes of the inorganic world only in point of degree or quatitatively, not qualitatively. ("General Morphology," I, Chap. V; VII, pp. 109–238. "Natural Creation," VIII, First Edition, Lecture XV.)

C. In its narrowest sense: *Zoopsychism.* Irritability, or universal organic soul-activity, such as is the attribute of all organisms, (identical with "life,") reaches a higher stage through abstraction, through the formation of *ideas. Feeling* and *will* become more distinctly separated. This real soul-life, which is the attribute only of the higher animals, passes through a long succession of different stages of development, the most perfect of which is the soul of man. The so-called "freedom of the will" is apparent only, as each single volitional action is determined by a chain of precedent actions which ultimately rest either upon *heredity* (propagation) or upon *adaptation* (nutrition). As these last are ("mechanically") reducible to molecular motions, the same also holds true of the former.

IV. THEISM.

The idea of god that alone appears to be logically compatible with monism, is pantheism (or "cosmotheism") in the sense of Goethe and Spinoza. God according to this view is identical with the sum-total of the force of the universe, which is inseparable from the sum-total of the matter of the universe. In opposition to this view stands *anthropotheism.* This is the outcome of dualism, which places God as a personal being in opposition to the "world" created by him, and consequently is always forced in its reasonings to resort to anthropomorphic expedients.

V. MATERIALISM.

The most important differences of form in which this much misunderstood and variously interpreted movement of philosophy has presented itself, may be classed as follows:

A. In its most extended sense: as synonymous with *monism* (or with mechanicalism). All the phenomena of the world are founded upon material processes, upon *motions* (mechanicalism) or upon *feelings* (psychism), both of which, as fundamental qualities, are in-

separable from matter. Immaterial forces or immaterial "spirits" (minds) are unknown to us. As Goethe once said, "Mind can never exist and act without matter, matter never without mind."

B. In its more restricted sense: originally matter alone exists and creates *secondarily* force (or "mind"). The fallacy of this view lies in its regarding the two things "matter and force" as disjoint and separate. According to our view the two are inseparably connected,—united in each atom from the very first.

VI. SPIRITUALISM.

This phase also of the world-conception has been the subject of the same misunderstandings and perverted conceptions as its apparent opposite, materialism.

A. In its most extended sense, spiritualism is susceptible of identification with *psychism*—consequently also with monism. For *feeling* (pleasure and pain) is just as much a thoroughly universal and fundamental property of matter (of each atom!) as is *motion* (attraction and repulsion). Every single "spirit" is inseparably united with some "matter."

B. In its more restricted sense: originally force alone exists and creates *secondarily* matter. This view, which is very old and very widely spread ("creation of the world"), is just as false and as one-sided as its contrary (5 *B*).

VII. IMMORTALISM.

The "belief in immortality" is scientifically (*critically*) tenable only as a *general* proposition, and is in this case identical with the most universal law of physics, the *conservation of energy* (coincidently, of course, the conservation of matter). On the other hand, the widely disseminated *dogmatic* belief in a *personal* immortality, a belief supported by the mass of the ecclesiastical religions, and of utmost importance as the consciously or unconsciously assumed *base*-axiom of a great number of philosophical systems, is, *scientifically*, absolutely untenable. The "human soul" (i. e. the sum-total of the individual life-activity: feeling, motion,—will,—and idea) is simply a transient developmentary phenomenon—a very highly developed "vertebrate-soul."

VIII. COSMISM.

The determinate, and, as I believe, logical, form of the conception of the world, the principles of which I have advocated for thirty years, and whose most important aspects have been briefly outlined in the preceding paragraphs, may also be designated *cosmism*, to the extent that it proceeds from the fundamental idea that *cosmogeny* or the "world-process," as world-*development*, is, within certain limits, (within the limits namely of a reduction to the basic notions: matter and its two inseparable fundamental qualities motion and feeling,) a *knowable* natural process. Cosmism is opposed, thus, to *agnosticism*.

* * *

One highly important principle of my monism seems to me to be, that I regard *all* matter as *ensouled*, that is to say as endowed with *feeling* (pleasure and pain) and with *motion*, or, better, with the power of motion. As elementary (atomistic) attraction and repulsion these powers are asserted in every simplest chemical process, and on them is based also every other phenomenon, consequently also the highest-developed soul-activity of man. For the comprehension of this *graduated* psychical development of matter perhaps my three stages will be useful: III *A*. (Panpsychism), III *B*. (Biopsychism), III *C*. (Zoopsychism). So too consciousness, as the highest psychical action and the one most difficult to be explained, is in my views imply a higher stage of brain-activity, based upon the association, the abstraction, and centralisation of groups of ideas. Perhaps I have expressed myself poorly in these expositions, as I am little accustomed to dealing with philosophical axioms abstractly, and am too exclusively engaged in the concrete activity of my own special department. I cherish the hope, however, of being able within two or three years to devote more of my time to purely philosophical labors; when my work with the Challenger material, which has now absorbed twelve years of unremitting toil, is ended, my special zoological activity will have been completed; and I shall then find the opportunity of contributing more frequently to your highly valued magazines *The Monist* and *The Open Court*.

ERNST HAECKEL.

THE MAGIC SQUARE.

I.

INTRODUCTORY.

AMONG the philosophies of modern times there is no other which emphasises so much the importance of form and formal thought as the monism of *The Monist*. An expression thereof is found in the following passages:

"The order that prevails among the facts of reality is due to the laws of form. Upon the order of the world depends its cognisability.

". . . . The laws of form are no less eternal than are matter and energy and 'Verily I say unto you, till heaven and earth pass, one jot or one tittle shall in no wise pass from the law!'

"The laws of form and their origin have been a puzzle to all philosophers. 'Ay, there's the rub!' The difficulties of Hume's problem of causation, of Kant's *a priori*, of Plato's ideas, of Mill's method of deduction, etc., etc., all arise from a one-sided view of form and the laws of form and formal thought."

Considering the great results which engineering and other applied sciences accomplish through the assistance of mathematics, we must confess that the forms of thought are wonderful indeed, and it is not at all astonishing that the primitive thinkers of mankind when the importance of the laws of formal thought in some way or another first dawned on their minds, attributed magic powers to numbers and geometrical figures.

We shall devote the following pages to a brief review of magic squares, the consideration of which has made many a man believe in mysticism. And yet there is no mysticism about them unless we either consider everything mystical, even that twice two is four, or join the sceptic in his exclamation that we can truly not

ALBERT DÜRER'S ENGRAVING

MELANCHOLY

OR THE

GENIUS OF THE INDUSTRIAL SCIENCE OF MECHANICS.

know whether twice two might not be five in other spheres of the universe.

The author of the short article on "Magic Squares" in the English Cyclopædia (Vol. III, p. 415), presumably Prof. De Morgan, says:

"Though the question of magic squares be in itself of no use, yet it belongs to a class of problems which call into action a beneficial species of investigation. Without laying down any rules for their construction, we shall content ourselves with destroying their magic quality, and showing that the non-existence of such squares would be much more surprising than their existence."

This is the point. There obtains a symphonic harmony in mathematics which is the more startling the more obvious and self-evident it appears to him who understands the laws that produce this symphonic harmony.

* * *

On the wood-cut named "Melancholia"* of the famous Nuremberg painter, Albrecht Dürer, is found among a number of other

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* The term melancholy meant in Dürer's time, as it did also in Shakespeare's and Milton's, "thought or thoughtfulness." Says Milton in *Il Penseroso*:

"Hail, thou Goddess, sage and holy,
Hail divinest melancholy
Whose saintly visage is too bright
To hit the sense of human sight,
And therefore to our weaker view
O'erlaid with black, staid Wisdom's hue.—I, 12.

Thought that does not lead to action produces a gloomy state of mind. Thoughtfulness which cannot find a way out of itself is that melancholy which engenders weakness,—a truth which is illustrated in Hamlet. Shakespeare still uses the words thought and melancholy as synonyms, saying:

"The native hue of resolution
Is sicklied o'er with the pale cast of thought."

Dürer's melancholy does not represent the gloominess of thought, but the power of invention. Soberness and even a certain sadness are considered only as an element of this melancholy, but on the whole the genius of thought appears bright, self-possessed, and strong.

Dürer represents the Science of Mechanical Invention as a winged female figure musing over some problem. Scattered on the floor around her lie some of the simple tools used in the sixteenth century. A ladder leans against the house, that assists in climbing otherwise inaccessible heights. A scale, an hour-glass, a bell, and the magic square are hanging on the wall behind her.

At a distance a bat-like creature, being the gloom of melancholy, hovers in the air like a dark cloud, but the sun rises above the horizon, and at the happy middle between these two extremes stands the rainbow of serene hope and cheerful confidence.

emblems, which the reader will notice in our reproduction of the cut, the subjoined square. This arrangement of the sixteen natural num-

1	14	15	4
12	7	6	9
8	11	10	5
13	2	3	16

Fig. 1.

bers from 1 to 16 possesses the remarkable property that the same sum 34 will always be obtained whether we add together the four figures of any of the horizontal rows or the four of any vertical row or the four which lie in either of the two diagonals. Such an arrangement of numbers is termed a magic square, and the square which we have reproduced above is *the first magic square which is met with in the Christian Occident.*

Like chess and many of the problems founded on the figure of the chess-board, the problem of constructing a magic square also probably traces its origin to Indian soil. From there the problem found its way among the Arabs, and by them it was brought to the Roman Orient. Finally, since Albrecht Dürer's time, the scholars of Western Europe also have occupied themselves with methods for the construction of squares of this character.

The oldest and the simplest magic square consists of the quadratic arrangement of the nine numbers from 1 to 9 in such a manner that the sum of each horizontal, vertical, or diagonal row, always remains the same, namely 15. This square is the adjoined.

2	7	6
9	5	1
4	3	8

Fig. 2.

Here, we will find, 15 always comes out whether we add 2 and 7 and 6, or 9 and 5 and 1, or 4 and 3 and 8, or 2 and 9 and 4, or 7 and 5 and 3, or 6 and 1 and 8, or 2 and 5 and 8, or 6 and 5 and 4.

The question naturally presents itself, whether this condition of the constant equality of the added sum also remains fulfilled when the numbers are assigned different places. It may be easily shown

however that 5 necessarily must occupy the middle place, and that the even numbers must stand in the corners. This being so, there are but 7 additional arrangements possible, which differ from the arrangement above given and from one another only in the respect that the rows at the top, at the left, at the bottom, and at the right, exchange places with one another and that in addition a mirror be imagined present with each arrangement. So too from Dürer's square of 4 times 4 places, by transpositions, a whole set of new correct squares may be formed. A magic square of the 4 times 4 numbers from 1 to 16 is formed in the simplest manner as follows. We inscribe the numbers from 1 to 16 in their natural order in the squares, thus:

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Fig. 3.

We then leave the numbers in the four corner-squares, viz. 1, 4, 13, 16, as well also as the numbers in the four middle-squares, viz. 6, 7, 10, 11, in their original places; and in the place of the remaining eight numbers, we write the complements of the same with respect to 17: thus 15 instead of 2, 14 instead of 3, 12 instead of 5, 9 instead of 8, 8 instead of 9, 5 instead of 12, 3 instead of 14, and 2 instead of 15. We obtain thus the magic square

1	15	14	4	=34
12	6	7	9	=34
8	10	11	5	=34
13	3	2	16	=34
34	34	34	34	

Fig. 4.

from which the same sum 34 always results. It is an interesting property of this square that any four numbers which form a rectangle or square about the centre also always give the same sum 34; for example, 1, 4, 13, 16, or 6, 7, 10, 11, or 15, 14, 3, 2, or 12, 9, 5, 8,

or 15, 8, 2, 9, or 14, 12, 3, 5. We may easily convince ourselves that this square is obtainable from the square of Dürer by interchanging with one another the two middle vertical rows.

II.

EARLY METHODS FOR THE CONSTRUCTION OF ODD-NUMBERED SQUARES.

Since early times rules have also been known for the construction of magic squares of more than 3 times 3, or 4 times 4 spaces. In the first place, it is easy to calculate the sum which in the case of any given number of cells must result from the addition of each row. We take the determinate number of cells in each side of the square which we have to fill, multiply that number by itself, add 1, again multiply the number thus obtained by the number of the cells in each side, and, finally, divide the product by 2. Thus, with 4 times 4 cells or squares, we get: 4 times 4 are 16, 16 and 1 are 17, and one half of 17 times 4 is 34. Similarly, with 5 times 5 squares, we get: 5 times 5 are 25, and 1 makes 26, and the half of 26 times 5 is 65. Analogously, for 6 times 6 squares the summation 111 is obtained, for 7 times 7 squares 175, for 8 times 8 squares 260, for 9 times 9 squares 369, for 10 times 10 squares 505, and so on. The Hindu rule for the construction of magic squares whose roots are odd, may be enunciated as follows: To start with, write 1 in the centre of the topmost row, then write 2 in the lowest space of the

175=							=175
30	39	48	1	10	19	28	=175
38	47	7	9	18	27	29	=175
46	6	8	17	26	35	37	=175
5	14	16	25	34	36	45	=175
13	15	24	33	42	44	4	=175
21	23	32	41	43	3	12	=175
22	31	40	49	2	11	20	=175
175	175	175	175	175	175	175	

Fig. 5.

vertical column next adjacent to the right, and then so inscribe the remaining numbers in their natural order in the squares diagonally upwards towards the right, that on reaching the right-hand margin

the inscription shall be continued from the left-hand margin in the row just above, and on reaching the upper margin shall be continued from the lower margin in the column next adjacent to the right, noting that whenever we are arrested in our progress by a square already occupied we are to fill out the square next beneath the one we have last filled. In this manner, for example, the last preceding square of 7 times 7 cells is formed, in which the reader is requested to follow the numbers in their natural sequence (Fig. 5).

For the next further advancements of the theory of magic squares and of the methods for their construction we are indebted to the Byzantian Greek, Moschopulus, who lived in the fourteenth century; also, after Albrecht Dürer who lived about the year 1500, to the celebrated arithmetician Adam Riese, and to the mathematician Michael Stifel, which two last lived about 1550. In the seventeenth century Bachet de Méziriac, and Athanasius Kircher employed themselves on magic squares. About 1700, finally, the French mathematicians De la Hire and Sauveur made considerable contributions to the theory. In recent times mathematicians have concerned themselves much less about magic squares, as they have indeed about mathematical recreations generally. But quite recently the Brunswick mathematician Scheffler has put forth his own and other's studies on this subject in an elegant form.

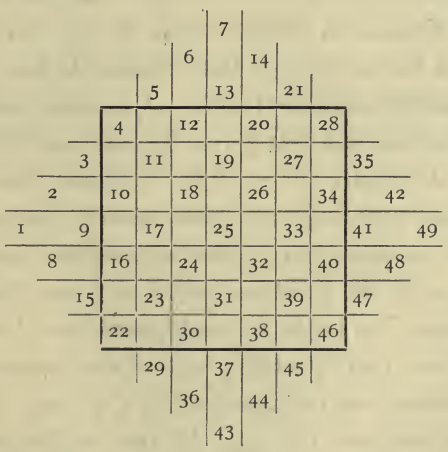

Fig. 6.

The best known of the various methods of constructing magic squares of an odd number of cells is the following. First write the numbers in diagonal succession as in the preceding diagram (Fig. 6). After 25 cells of the square of 49 cells which we have to fill out, have thus been occupied, transfer the six figures found outside each side of the square, without changing their configuration, into the empty cells of the side directly opposite. By this method, which we owe to Bachet de Méziriac, we obtain the following magic square of the numbers from 1 to 49:

4	29	12	37	20	45	28
35	11	36	19	44	27	3
10	42	18	43	26	2	34
41	17	49	25	1	33	9
16	48	24	7	32	8	40
47	23	6	31	14	39	15
22	5	30	13	38	21	46

Fig. 7.

III.

MODERN MODES OF CONSTRUCTION OF ODD-NUMBERED SQUARES.

The reader will justly ask whether there do not exist other correct magic squares which are constructed after a different method from that just given, and whether there do not exist modes of construction which will lead to all the imaginable and possible magic squares of a definite number of cells. A general mode of construction of this character was first given for odd-numbered squares by De la Hire, and recently perfected by Professor Scheffler.

To acquaint ourselves with this general method, let us select as our example a square of 5. First we form two auxiliary squares. In the first we write the numbers from 1 to 5 five times; and in the second, five times, the following multiples of five, viz.: 0, 5, 10, 15, 20. It is clear now that by adding each of the numbers of the series from 1 to 5 with each of the numbers 0, 5, 10, 15, 20, we shall get all the 25 numerals from 1 to 25. All that additionally remains to be done therefore, is, so to inscribe the numbers that by the addition

of the two numbers in any two corresponding cells each combination shall come out once and only once; and further that in each horizontal, vertical, and diagonal row in each auxiliary square each number shall once appear. Then the required sum of 65 must necessarily result in every case, because the numbers from 1 to 5 added together make 15, and the numbers 0, 5, 10, 15, 20 make 50.

We effect the required method of inscription by imagining the numbers 1, 2, 3, 4, 5 (or 0, 5, 10, 15, 20) arranged in cyclical succession, that is 1 immediately following upon 5, and, starting from any number whatsoever, by skipping each time either none or one or two or three etc. figures. Cycles are thus obtained of the first, the second, the third etc. orders; for example 3 4 5 1 2 is a cycle of the first order, 2 4 1 3 5 is a cycle of the second order, 1 5 4 3 2 is a cycle of the fourth order, etc. The only thing then to be looked out for in the two auxiliary squares is, that the same "cycle" order be horizontally preserved in all the rows, that the same also happens for the vertical rows, but that the cycle order in the horizontal and vertical rows is different. Finally we have only additionally to take care that to the same numbers of the one auxiliary square not like numbers but *different* numbers correspond in the other auxiliary square, that is lie in similarly situated cells. The following auxiliary squares are, for example, thus possible:

3	4	5	1	2
5	1	2	3	4
2	3	4	5	1
4	5	1	2	3
1	2	3	4	5

Fig. 8.

and

0	10	20	5	15
5	15	0	10	20
10	20	5	15	0
15	0	10	20	5
20	5	15	0	10

Fig. 9.

Adding in pairs the numbers which occupy similarly situated cells, we obtain the following correct magic square:

3	14	25	6	17
10	16	2	13	24
12	23	9	20	1
19	5	11	22	8
21	7	18	4	15

Fig. 10.

It will be seen that we are able thus to construct a very large number of magic squares of 5 times 5 spaces by varying in every possible manner the numbers in the two auxiliary squares. Furthermore, the squares thus formed possess the additional peculiarity, that every 5 numbers which fill out two rows that are parallel to a diagonal and lie on different sides of the diagonal also give the constant sum of 65. For example: 3 and 7, 11, 20, 24; or 10, 14 and 18, 22, 1. Altogether then the sum 65 is produced out of 20 rows or pairs of rows. On this peculiarity is dependent the fact that if we imagine an unlimited number of such squares placed by the side of, above, or beneath an initial one, we shall be able to obtain as many quadratic cells as we choose, so arranged that the square composed of any 25 of these cells will form a correct magic square, as the following figure will show :

2	13	24	10	16	2	13	24	10	16	2
9	20	1	12	23	9	20	1	12	23	9
11	22	8	19	5	11	22	8	19	5	11
18	4	15	21	7	18	4	15	21	7	18
25	6	17	3	14	25	6	17	3	14	25
2	13	24	10	16	2	13	24	10	16	2
9	20	1	12	23	9	20	1	12	23	9
11	22	8	19	5	11	22	8	19	5	11
18	4	15	21	7	18	4	15	21	7	18
25	6	17	3	14	25	6	17	3	14	25
2	13	24	10	16	2	13	24	10	16	2
9	20	1	12	23	9	20	1	12	23	9
11	22	8	19	5	11	22	8	19	5	11

Fig. 11.

Every square of every 25 of these numbers, as for example the two dark-bordered ones, possesses the property that the addition of the horizontal, vertical, and diagonal rows gives each the same sum, 65.

As an example of a higher number of cells we will append here a magic square of 11 times 11 spaces formed by the general method of De la Hire from the two auxiliary squares of Figs. 12 and 13 From these two auxiliary squares we obtain by the addition of the

two numbers of every two similarly situated cells, the magic square, exhibited in Diagram 14, in which each row gives the same sum 671.

1	2	3	4	5	6	7	8	9	10	11
3	4	5	6	7	8	9	10	11	1	2
5	6	7	8	9	10	11	1	2	3	4
7	8	9	10	11	1	2	3	4	5	6
9	10	11	1	2	3	4	5	6	7	8
11	1	2	3	4	5	6	7	8	9	10
2	3	4	5	6	7	8	9	10	11	1
4	5	6	7	8	9	10	11	1	2	3
6	7	8	9	10	11	1	2	3	4	5
8	9	10	11	1	2	3	4	5	6	7
10	11	1	2	3	4	5	6	7	8	9

Fig. 12.

0	11	22	33	44	55	66	77	88	99	110
33	44	55	66	77	88	99	110	0	11	22
66	77	88	99	110	0	11	22	33	44	55
99	110	0	11	22	33	44	55	66	77	88
11	22	33	44	55	66	77	88	99	110	0
44	55	66	77	88	99	110	0	11	22	33
77	88	99	110	0	11	22	33	44	55	66
110	0	11	22	33	44	55	66	77	88	99
22	33	44	55	66	77	88	99	110	0	11
55	66	77	88	99	110	0	11	22	33	44
88	99	110	0	11	22	33	44	55	66	77

Fig. 13.

1	13	25	37	49	61	73	85	97	109	121
36	48	60	72	84	96	108	120	11	12	24
71	83	95	107	119	10	22	23	35	47	59
106	118	9	21	33	34	46	58	70	82	94
20	32	44	45	57	69	81	93	105	117	8
55	56	68	80	92	104	116	7	19	31	43
79	91	103	115	6	18	30	42	54	66	67
114	5	17	29	41	53	65	77	78	90	102
28	40	52	64	76	88	89	101	113	4	16
63	75	87	99	100	112	3	15	27	39	51
98	110	111	2	14	26	38	50	62	74	86

Fig. 14.

IV.

EVEN-NUMBERED SQUARES.

Of magic squares having an even number of places we have hitherto had to deal only with the square of 4. To construct squares of this description having a higher even number of places, different and more complicated methods must be employed than for squares of odd numbers of places. However, in this case also, as in dealing with the square of 4, we start with the natural sequence

of the numbers and must then find the complements of the numbers with respect to some other certain number (as 17 in the square of 4) and also effect certain exchanges of the numbers with one another. To form, for example, a magic square of 6 times 6 places, we inscribe in the 12 diagonal cells the numbers that in the natural sequence of inscription fall into these places, then in the remaining cells the complements of the numbers that belong therein with respect to 37, and finally effect the following six exchanges, viz. of the numbers 33 and 3, 25 and 7, 20 and 14, 18 and 13, 10 and 9, and 5 and 2. In this way the following magic square is obtained.

1	35	34	3	32	6
30	8	28	27	11	7
24	23	15	16	14	19
13	17	21	22	20	18
12	26	9	10	29	25
31	2	4	33	5	36

Fig. 15.

This square may also be constructed by the method of De la Hire, from two auxiliary squares with the numbers 1, 2, 3, 4, 5, 6 and 0, 6, 12, 18, 24, 30 respectively. In this case, however, the vertical rows of the one square and the horizontal rows of the other must each so contain two same numbers thrice repeated that the summation shall always remain 21 and 90 respectively. In this manner we get the magic square last given above from the two following auxiliary squares:

1	5	4	3	2	6
6	2	4	3	5	1
6	5	3	4	2	1
1	5	3	4	2	6
6	2	3	4	5	1
1	2	4	3	5	6

Fig. 16.

and

0	30	30	0	30	0
24	6	24	24	6	6
18	18	12	12	12	18
12	12	18	18	18	12
6	24	6	6	24	24
30	0	0	30	0	30

Fig. 17.

It is to be noted in connection with this example that here also as in the case of odd-numbered squares, it is possible so to inscribe

six times the numbers from 1 to 6 that each number shall appear once and only once in each horizontal, vertical, and diagonal row; for example, in the following manner:

1	2	3	4	5	6
2	4	6	1	3	5
3	6	5	2	1	4
5	3	1	6	4	2
6	5	4	3	2	1
4	1	2	5	6	3

Fig. 18.

But if we attempt so to insert, in a like manner, the other set of numbers 0, 6, 12, 18, 24, 30 in a second auxiliary square, that each number of the first auxiliary square shall stand once and once only in a corresponding cell with each number of the second square, all the attempts we may make to fulfil coincidently the last named condition will result in failure. It is therefore necessary to select auxiliary squares like the two given above. It is noteworthy, that the fulfilment of the second condition is impossible only in the case of the square of 6, but that in the case of the square of 4 or of the square of 8, for example, two auxiliary squares, such as the method of De la Hire requires, are possible. Thus, taking the square of 4 we get

1	2	3	4
4	3	2	1
2	1	4	3
3	4	1	2

Fig. 19.

and

0	4	8	12
8	12	0	4
12	8	4	0
4	0	12	8

Fig. 20.

The reader may form for himself the magic square which these give.

The existence of these two auxiliary squares furnishes a key to the solution of a pretty problem at cards. If we replace, namely, the numbers 1, 2, 3, 4 by the Ace, the King, the Queen, and the Knave, and the numbers 0, 4, 8, 12 by the four suits, clubs, spades, hearts, and diamonds, we shall at once perceive that it is possible, and must be so necessarily, quadratically to arrange in such a manner the four Aces, the four Kings, the Four Queens, and the four

Knaves, that in each horizontal, vertical, and diagonal row, each one of the four suits and each one of the four denominations shall appear once and once only. The auxiliary squares above given furnish the appended solution of this problem:

CLUBS ACE	SPADES KING	HEARTS QUEEN	DIAMONDS KNAVE
HEARTS KNAVE	DIAMONDS QUEEN	CLUBS KING	SPADES ACE
DIAMONDS KING	HEARTS ACE	SPADES KNAVE	CLUBS QUEEN
SPADES QUEEN	CLUBS KNAVE	DIAMONDS ACE	HEARTS KING

Fig. 21.

To fix the solution of the problem in the memory, observe that, starting from the several corners, each suit and each denomination must be placed in the spots of the move of a Knight. If we fix the positions of the four cards of any one row, there will be only two possibilities left of so placing the other cards that the required condition of having each suit and each denomination once and only once in each row shall be fulfilled.

Of magic squares of an even number of places we have up to this point examined only the squares of 4 and of 6. For the sake of completeness we append here one of 8 and one of 10 places. The mode of construction of these squares is similar to the method above discussed for the lower even numbers.

1	63	62	4	5	59	58	8
56	10	11	53	52	14	15	49
48	18	19	45	44	22	23	41
25	39	38	28	29	35	34	32
33	31	30	36	37	27	26	40
24	42	43	21	20	46	47	17
16	50	51	13	12	54	55	9
57	7	6	60	61	3	2	64

Fig. 22.

1	99	3	97	96	5	94	8	92	10
90	12	88	14	86	85	17	83	19	11
80	79	23	77	25	26	74	28	22	71
31	69	68	34	66	65	37	33	62	40
60	42	58	57	45	46	44	53	49	51
50	52	43	47	55	56	54	48	59	41
61	32	38	64	36	35	67	63	39	70
21	29	73	27	75	76	24	78	72	30
20	82	18	84	15	16	87	13	89	81
91	9	93	4	6	95	7	98	2	100

Fig. 23.

The magic squares of even numbers thus constructed are not the only possible ones. On the contrary, there are very many others possible, which obey different laws of formation. It has been calculated, for example, that with the square of 4 it is possible to construct 880, and with the square of 6, *several million*, different magic squares. The number of odd-numbered magic squares constructible by the method of De la Hire is also very great. With the square of 7, the possible constructions amount to 363,916,800. With the squares of higher numbers the multitude of the possibilities increases in the same enormous ratio.

V.

MAGIC SQUARES WHOSE SUMMATION GIVES THE NUMBER OF A YEAR.

The magic squares which we have so far considered contain only the natural numbers from 1 upwards. It is possible, however, easily to deduce from a correct magic square other squares in which a different law controls the sequence of the numbers to be inscribed. Of the squares obtained in this manner, we shall devote our attention here only to such in which, although formed by the inscription of successive numbers, the sum obtained from the addition of the rows is a determinate number which we have fixed upon beforehand, as *the number of a year*. In such a case we have simply to add to the numbers of the original square a determinate number so to be calculated, that the required sum shall each time appear. If this

sum is divisible by 3, magic squares will always be obtainable with 3 times 3 spaces which shall give this sum. In such a case we divide the sum required by 3 and subtract 5 from the result in order to obtain the number which we have to add to each number of the original square. If the sum desired is even but not divisible by 4, we must then subtract from it 34 and take one fourth of the result, to obtain the number which in this case is to be added in each place. If, for example, we wish to obtain the number of the year 1890 as the resulting sum of each row, we shall have to add to each of the numbers of an ordinary magic square of 4 times 4 spaces the number 464; in other words, instead of the numbers from 1 to 16 we have to insert in the squares the numbers from 465 to 480. As the number of the present year 1892 is divisible by 11, it must be possible to deduce from the magic square constructed by us at the conclusion of Section III a second magic square in which each row of 11 cells will give the number of the year 1892. To do this, we subtract from 1892 the sum of the original square, namely 671, and divide the remainder by 11, whereby we get 111 and thus perceive that the numbers from 112 to 232 are to be inscribed in the cells of

112	124	136	148	160	172	184	196	208	220	232	=1892
147	159	171	183	195	207	219	231	122	123	135	=1892
182	194	206	218	230	121	133	134	146	158	170	=1892
217	229	120	132	144	145	157	169	181	193	205	=1892
131	143	155	156	168	180	192	204	216	228	119	=1892
166	167	179	191	203	215	227	118	130	142	154	=1892
190	202	214	226	117	129	141	153	165	177	178	=1892
225	116	128	140	152	164	176	188	189	201	213	=1892
139	151	163	175	187	199	200	212	224	115	127	=1892
174	186	198	210	211	223	114	126	138	150	162	=1892
209	221	222	113	125	137	149	161	173	185	197	=1892
1892	1892	1892	1892	1892	1892	1892	1892	1892	1892	1892	

Fig. 24.

the square required. We get in this way the preceding square, from which *one and the same sum, namely 1892, can be obtained 44 times*, first from each of the 11 horizontal rows, secondly from each of the 11 vertical rows, thirdly from each of the two diagonal rows, and

fourthly twenty additional times from each and every pair of any two rows that lie parallel to a diagonal, have together 11 cells, and lie on different sides of the diagonal, as for example, 196, 122, 158, 205, 131, 167, 214, 140, 187, 223, 149.

VI.

CONCENTRIC MAGIC SQUARES.

The acuteness of the mathematicians has also discovered magic squares which possess the peculiar property that if one row after another be taken away from each side, the smaller inner squares remaining will still be magical squares, that is to say, all their rows when added will give the same sum. It will be sufficient to give two examples here of such squares, (the laws for their construction being somewhat more complicated,) of which the first has 7 times 7 and the second 8 times 8 places. The numbers within each of the dark-bordered frames form with respect to the centre smaller squares which in their own turn are magical.

4	5	6	43	39	38	40
49	15	16	33	30	31	1
48	37	22	27	26	13	2
47	36	29	25	21	14	3
8	18	24	23	28	32	42
9	19	34	17	20	35	41
10	45	44	7	11	12	46

Fig. 25.

1	56	55	11	53	13	14	57
63	15	47	22	42	24	45	2
62	49	25	40	34	31	16	3
4	48	28	37	35	30	17	61
5	44	39	26	32	33	21	60
59	19	38	27	29	36	46	6
58	20	18	43	23	41	50	7
8	9	10	54	12	52	51	64

Fig. 26.

In the first of these two squares the internal square of 3 times 3 places contains the numbers from 21 to 29 in such a manner that each row gives when added the sum of 75. This square lies within a larger one of 5 times 5 spaces, which contains the numbers from 13 to 37 in such a manner that each row gives the sum of 125. Finally, this last square forms part of a square of 7 times 7 places which contains the numbers from 1 to 49 so that each row gives the sum of 175.

In the second square the inner central square of 4 times 4 places contains the numbers from 25 to 40 in such a manner that each row

gives the sum of 130. This square is the middle of a square of 6 times 6 places which so contains the numbers from 15 to 50 that each row gives the sum 165. Finally, this last square is again the middle of an ordinary magic square composed of the numbers from 1 to 64.

VII.

MAGICAL SQUARES WITH MAGICAL PARTS.

If we divide a square of 8 times 8 places by means of the two middle lines parallel to its sides into 4 parts containing each 4 times 4 spaces, we may propound the problem of so inserting the numbers from 1 to 64 in these spaces that not only the whole shall form a magic square, but also that each of the 4 parts individually shall be magical, that is to say, give the same sum for each row. This problem also has been successfully solved, as the following diagram will show.

1	4	63	62	5	8	59	58
64	61	2	3	60	57	6	7
42	43	24	21	34	35	32	29
23	22	41	44	31	30	33	36
13	16	51	50	9	12	55	54
52	49	14	15	56	53	10	11
38	39	28	25	46	47	20	17
27	26	37	40	19	18	45	48

Fig. 27.

The 4 numbers in each row of any one of the sub-squares here, gives 130; so that the sum of each one of the rows of the large square will be 260.

Finally, in further illustration of this idea, we will submit to the consideration of our readers a very remarkable square of the numbers from 1 to 81. This square, which will be found on the following page (Fig. 28), is divided by parallel lines into 9 parts, of which each contains 9 consecutive numbers that severally make up a magic square by themselves.

Wonderful as the properties of this square may appear, the law by which the author constructed it is equally simple. We have

simply to regard the 9 parts as the 9 cells of a magic square of the numbers from I to IX, and then to inscribe by the magic prescript in the square designated as I the numbers from 1 to 9, in the square

31	36	29	76	81	74	13	18	11
30	32	34	75	77	79	12	14	16
35	28	33	80	73	78	17	10	15
22	27	20	40	45	38	58	63	56
21	23	25	39	41	43	57	59	61
26	19	24	44	37	42	62	55	60
67	72	65	4	9	2	49	54	47
66	68	70	3	5	7	48	50	52
71	64	69	8	1	6	53	46	51

Fig. 28.

designated as II the numbers from 10 to 18, and so on. In this way the square above given is obtained from the following base-square :

IV	IX	II
III	V	VII
VIII	I	VI

Fig. 29.

VIII.

MAGIC SQUARES THAT INVOLVE THE MOVE OF THE CHESS-KNIGHT.

What one of our readers does not know the problems contained in the recreation columns of our magazines, the requirements of which are to compose into a verse 8 times 8 quadratically arranged syllables, of which every two successive syllables stand on spots so situated with respect to each other that a chess-knight can move from the one to the other? If we replace in such an arrangement the 64 successive syllables by the 64 numbers from 1 to 64, we shall obtain a knight-problem made up of numbers. Methods also exist indeed for the construction of such dispositions of numbers, which then form the foundation of the construction of the problems in the newspapers. But the majority of knight-problems of this class are the outcome of experiment rather than the product of method-

ical creation. If however it is a severe test of patience to form a knight-problem by experiment, it stands to reason that it is a still severer trial to effect at the same time the additional result that the 64 numbers which form the knight-problem shall also form a magic square.

This trial of endurance was undertaken several decades ago, by a pensioned Moravian officer named Wenzelides, who was spending the last days of his life in the country. After a series of trials which lasted years he finally succeeded in so inscribing in the 64 squares of the chess-board the numbers from 1 to 64 that successive numbers, as well also as the numbers 64 and 1, were always removed from one another in distance and direction by the move of a knight, and that in addition thereto the summation of the horizontal and the vertical rows always gave the same sum 260. Ultimately he discovered several squares of this description, which were published in the *Berlin Chess Journal*. One of these is here appended :

47	10	23	64	49	2	59	6
22	63	48	9	60	5	50	3
11	46	61	24	1	52	7	58
62	21	12	45	8	57	4	51
19	36	25	40	13	44	53	30
26	39	20	33	56	29	14	43
35	18	37	28	41	16	31	54
38	27	34	17	32	55	42	15

Fig. 30.

The move of the knight and the equality of the summation of the horizontal and vertical rows, therefore, are the facts to be noted here. The diagonal rows do *not* give the sum 260. Perhaps some one among our readers who possesses the time and patience will be tempted to outdo Wenzelides, and to devise a numeral knight-problem of this kind which will give 260 not only in the horizontal and vertical but also in the two diagonal rows.

IX.

MAGICAL POLYGONS.

So far we have only considered such extensions of the idea underlying the construction of the magic square in which the figure of the square was retained. We may however contrive extensions of the idea in which instead of a square, a rectangle, a triangle, or a pentagon, and the like, appear. Without entering into the consideration of the methods for the construction of such figures, we will give here of magical polygons simply a few examples, all supplied by Professor Scheffler:

1) The numbers from 1 to 32 admit of being written in a rectangle of 4×8 in such a manner that the long horizontal rows give the sum of 132 and the short vertical rows the sum of 66; thus:

1	10	11	29	28	19	18	16
9	2	30	12	20	27	7	25
24	31	3	21	13	6	26	8
32	23	22	4	5	14	15	17

Fig. 31.

2) The numbers from 1 to 27 admit of being so arranged in three regular triangles about a point which forms a common centre, that each side of the outermost triangle will present 6 numbers of the total summation 96 and each side of the middle triangle 4 numbers whose sum is 61; as the following figure shows:

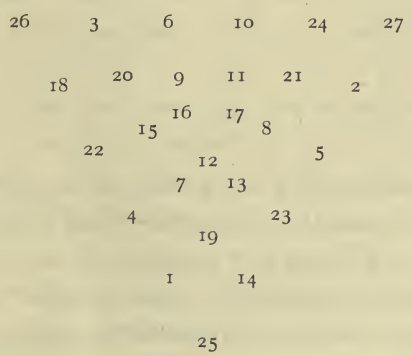

Fig. 32.

3) The numbers from 1 to 80 admit of being formed about a point as common centre into 4 pentagons, such that each side of the first pentagon from within contains two numbers, each side of the second pentagon four numbers, each of the third six numbers, and each side of the fourth, outermost pentagon eight numbers. The sum of the numbers of each side of the second pentagon is 122, the sum of those of each side of the third pentagon is 248, and that of those of each side of the fourth pentagon 254. Furthermore, the sum of any four corner numbers lying in the same straight line with the centre, is also the same; namely, 92.

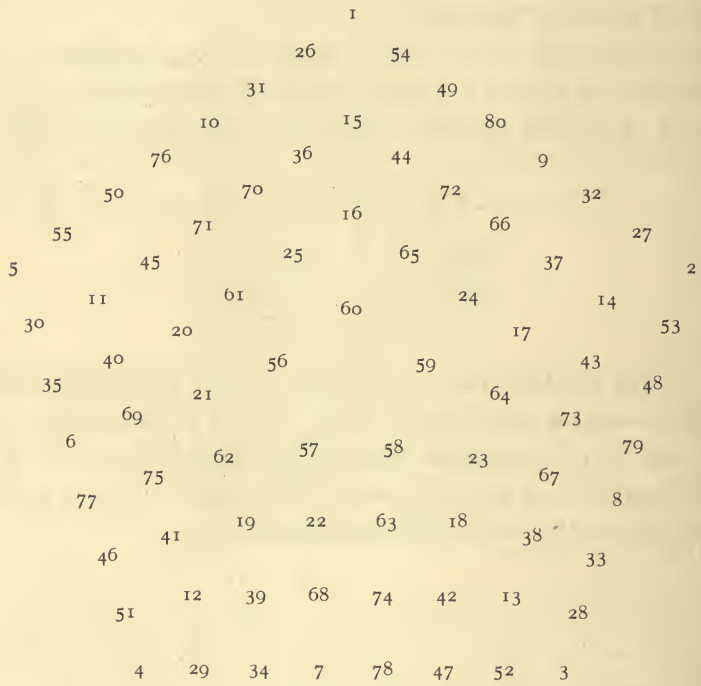

Fig. 33.

4) The numbers from 1 to 73 admit of being arranged about a centre, in which the number 37 is written, into three hexagons which contain respectively 3, 5, and 7 numbers in each side and possess the following pretty properties. Each hexagon always gives the same sum, not only when the summation is made along its six sides, but also when it is made along the six diameters that join its corners

and along the six that are constructed at right angles to its sides; this sum, for the first hexagon from within, is 111, for the second 185, and for the third 259.

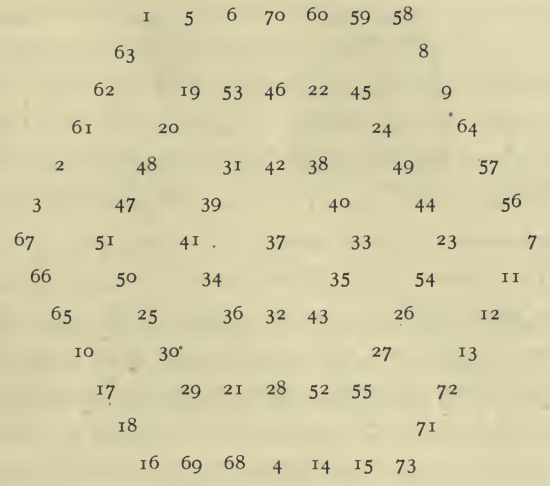

Fig. 34.

X.

MAGIC CUBES.

Several inquirers, particularly Kochansky (1686), Sauveur (1710), Hugel (1859), and Scheffler (1882), have extended the principle of the magic squares of the plane to three-dimensioned space. Imagine a cube divided by planes parallel to its sides and equidistant from one another, into cubical compartments. The problem is then, so to insert in these compartments the successive natural numbers that every row from the right to the left, every row from the front to the back, every row from the top to the bottom, every diagonal of a square, and every principal diagonal passing through the centre of the cube shall contain numbers whose sum is always the same. For 3 times 3 times 3 compartments, a magic cube of this description is not constructible. For 4 times, 4 times 4 compartments a cube is constructible such that any row parallel to an edge of the cube and every principal diagonal give the sum of 130. To obtain a magic cube of 64 compartments, imagine the numbers which belong in the compartments written on the upper surface of the same

and the numbers then taken off in layers of 16 from the top downwards. We obtain thus 4 squares of 16 cells each, which together make up the magic cube; as the following diagrams will show:

First Layer from the Top.

1	48	32	49
60	21	37	12
56	25	41	8
13	36	20	61

Second Layer from the Top.

63	18	34	15
6	43	27	54
10	39	23	58
51	30	46	3

Third Layer from the Top.

62	19	35	14
7	42	26	55
11	38	22	59
50	31	47	2

Fourth Layer from the Top.

4	45	29	52
57	24	40	9
53	28	44	5
16	33	17	64

The same sum 130 here comes out not less than 52 times; viz. in the first place from the 16 rows from left to right, secondly from the 16 rows from the front to the back, thirdly from the 16 rows counting from the top to the bottom, and lastly from the 4 rows which join each two opposite corners of the cube, namely from the rows: 1, 43, 22, 64; 49, 27, 38, 16; 13, 39, 26, 52; 61, 23, 42, 4.

For a cube with 5 compartments in each edge the arrangement of the figures can so be made that all the 75 rows parallel to any and every edge, all the 30 rows lying in any diagonal of a square, and all the 4 rows forming any principal diagonal shall have one and the same summation, 315.

Just as the magic squares of an odd number of cells could be formed with the aid of *two* auxiliary squares, so also odd-numbered magic cubes can be constructed with the help of *three* auxiliary cubes.

First Layer from Top.

121	27	83	14	70
10	61	117	48	79
44	100	1	57	113
53	109	40	91	22
87	18	74	105	31

Second Layer from Top.

2	58	114	45	96
36	92	23	54	110
75	101	32	88	19
84	15	66	122	28
118	49	80	6	62

Third Layer from Top.

33	89	20	71	102
67	123	29	85	11
76	7	63	119	50
115	41	97	3	59
24	55	106	37	93

Fourth Layer from Top.

64	120	46	77	8
98	4	60	111	42
107	38	94	25	51
16	72	103	34	90
30	81	12	68	124

Lowest Layer.

95	21	52	108	39
104	35	86	17	73
13	69	125	26	82
47	78	9	65	116
56	112	43	99	5

In this manner the preceding magic cube of 5 times 5 times 5 compartments is formed, in which, it may be additionally noticed, the middle number between 1 and 125, namely 63, is placed in the central compartment; by which arrangement the attainment of the sum of 315 is assured in the four principal diagonals and the 30 sub-diagonals. The condition attained in the magic squares, that the diagonal-pairs parallel to the sub-diagonals also shall give the sum 315 is not attainable in this case but is so in the case of higher numbers of compartments.

CONCLUSION.

Musing on such problems as are the magic squares is fascinating to thinkers of a mathematical turn of mind. We take delight in discovering a harmony that abides as an intrinsic quality in the forms of our thought. The problems of the magic squares are playful puzzles, invented as it seems for mere pastime and sport. But there is a deeper problem underlying all these little riddles, and this deeper problem is of a sweeping significance. It is the philosophical problem of the world-order.

The formal sciences are creations of the mind. We build the sciences of mathematics, geometry, and algebra with our conception of pure forms which are abstract ideas. And the same order that prevails in these mental constructions permeates the universe, so that an old philosopher, overwhelmed with the grandeur of law, imagined he heard its rhythm in a cosmic harmony of the spheres.

H. SCHUBERT.

MR. SPENCER ON THE ETHICS OF KANT.

MR. HERBERT SPENCER published in the *Fortnightly Review* for July 1888 and in the *Popular Science Monthly* for August of the same year an article on "The Ethics of Kant" in which he so strangely misrepresents Kant's position that Kant to any uninitiated reader must appear not only as superficial and shallow, but even as palpably nonsensical.

Mr. Spencer's article on "The Ethics of Kant" is a severe criticism mainly of the nonsensical idea, erroneously imputed to Kant, of a will that has no end. At the same time Mr. Spencer reproaches Kant with assuming the simplicity of conscience and believing in a non-evolutionary origin of the minds of living beings.

In reply to Mr. Spencer an editorial article appeared in *The Open Court* under the caption "Herbert Spencer on the Ethics of Kant" (Nos. 51 and 52), which was supplemented by another article entitled "Kant on Evolution" (No. 158), the latter being elicited by a renewed attack of Mr. Spencer upon Kant's views (which appeared in *Mind*, No. LIX, p. 313).

Mr. Spencer has republished his article "The Ethics of Kant" together with many other older articles in a work of three volumes entitled "Essays Scientific, Political, and Speculative," 1891, in which he repeats the following sentence :

> "Thus the basis of the argument by which Kant attempts to justify his assumption that there exists a good will apart from a good end, disappears utterly ; and leaves his dogma in all its naked unthinkableness."

To this sentence he adds the following foot-note as a reply to my criticisms :

"I find that in the above three paragraphs I have done Kant less than justice and more than justice—less, in assuming that his evolutionary view was limited to the genesis of our sidereal system, and more, in assuming that he had not contradicted himself. My knowledge of Kant's writings is extremely limited. In 1844 a translation of his 'Critique of Pure Reason' (then I think lately published) fell into my hands, and I read the first few pages enunciating his doctrine of Time and Space: my peremptory rejection of which caused me to lay the book down. Twice since then the same thing has happened; for, being an impatient reader, when I disagree with the cardinal propositions of a work I can go no further. One other thing I knew. By indirect references I was made aware that Kant had propounded the idea that celestial bodies have been formed by the aggregation of diffused matter. Beyond this my knowledge of his conceptions did not extend; and my supposition that his evolutionary conception had stopped short with the genesis of sun, stars, and planets, was due to the fact that his doctrine of Time and Space, as forms of thought anteceding experience, implied a supernatural origin inconsistent with the hypothesis of natural genesis. Dr. Paul Carus, who, shortly after the publication of this article in the *Fortnightly Review* for July, 1888, undertook to defend the Kantian ethics in the American journal which he edits, *The Open Court*, has now (Sept. 4, 1890), in another defensive article, translated sundry passages from Kant's 'Critique of Judgment,' his 'Presumable Origin of Humanity,' and his work 'Upon the different Races of Mankind,' showing that Kant was, if not fully, yet partially, an evolutionist in his speculations about living beings. There is, perhaps, some reason for doubting the correctness of Dr. Carus's rendering of these passages into English. When, as in the first of the articles just named, he failed to distinguish between consciousness and conscientiousness, and when, as in this last article, he blames the English for mistranslating Kant, since they have said 'Kant maintained that Space and Time are intuitions,' which is quite untrue, for they have everywhere described him as maintaining that Space and Time are *forms* of intuition, one may be excused for thinking that possibly Dr. Carus has read into some of Kant's expressions, meanings which they do not rightly bear. Still, the general drift of the passages quoted makes it tolerably clear that Kant must have believed in the operation of natural causes as largely, though not entirely, instrumental in producing organic forms: extending this belief (which he says 'can be named a daring venture of reason') in some measure to the origin of Man himself. He does not, however extend the theory of natural genesis to the exclusion of the theory of supernatural genesis. When he speaks of an organic habit 'which in the wisdom of nature appears to be thus arranged in order that the species shall be preserved'; and when, further, he says 'we see, moreover, that a germ of reason is placed in him, whereby, after the development of the same, he is destined for social intercourse,' he implies divine intervention. And this shows that I was justified in ascribing to him the belief that Space and Time, as forms of thought, are supernatural endowments. Had he conceived of organic evolution in a consistent manner,

he would necessarily have regarded Space and Time as subjective forms generated by converse with objective realities.

"Beyond showing that Kant had a partial, if not a complete, belief in organic evolution (though with no idea of its causes), the passages translated by Dr. Carus show that he entertained an implied belief which it here specially concerns me to notice as bearing on his theory of 'a good will.' He quotes approvingly Dr. Moscati's lecture showing 'that the upright walk of man is constrained and unnatural,' and showing the imperfect visceral arrangements and consequent diseases which result: not only adopting, but further illustrating, Dr. Moscati's argument. If here, then, there is a distinct admission, or rather assertion, that various human organs are imperfectly adjusted to their functions, what becomes of the postulate above quoted 'that no organ for any purpose will be found in it but what is also the fittest and best adapted for that purpose'? And what becomes of the argument which sets out with this postulate? Clearly, I am indebted to Dr. Carus for enabling me to prove that Kant's defence of his theory of 'a good will' is, by his own showing, baseless."

Mr. Spencer's reply to my criticisms is surprising in more than one respect.

First, without even mentioning the objections I make he discredits my arguments by throwing doubt upon the correctness of the translations of the quoted passages.

Secondly, he alleges, with a view of justifying his doubt, that in the first of my articles I "failed to distinguish between consciousness and conscientiousness."*

Thirdly, Mr. Spencer declares that I had "read into some of Kant's expressions, meanings which they do not rightly bear."

Fourthly, Mr. Spencer bases this opinion upon a double mistake: he blames me for not distinguishing between the Kantian phrases that "Space and Time are intuitions" and that they are "forms of intuition."

Fifthly, acknowledging after all that Kant had at least "a partial belief in organic evolution," Mr. Spencer accuses him of inconsistency.

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*This article "Herbert Spencer on the Ethics of Kant" was electrotyped at the time it appeared in *The Open Court*. It is appended to this number of *The Monist* as documentary evidence of the fact, that there is not even so much as an occasion in the article for confounding "consciousness" and "conscientiousness."

Sixthly, several statements concerning Kant's views are made not because Kant held them but because Mr. Spencer assumes for trivial reasons that he is "justified in ascribing them to him."

Seventhly, these statements so vigorously set forth are accompanied by Mr. Spencer's remarkably frank confession of unfamiliarity with the subject under discussion.

It may be added that Mr. Spencer calls my criticisms "defensive articles." He says that "I undertook to defend the Kantian ethics"; while, in fact, my articles are aggressive. Kant needs no defense for being misunderstood, and it would not be my business to defend him, for I am not a Kantian in the sense that I adopt any of the main doctrines of Kant. On the contrary I dissent from him on almost all fundamental questions. In ethics I object to Kant's views in so far as they can be considered as pure formalism.* I am a Kantian only in the sense that I respect Kant as one of the most eminent philosophers, that I revere him as that teacher of mine whose influence upon me was greatest, and I consider the study of Kant's works as an indispensable requisite for understanding the problems of the philosophy of our time. Far from defending Kant's position, I only undertook to inform Mr. Spencer of what Kant had really maintained, so that instead of denouncing absurdities which Kant had never thought of, he might criticise the real Kant.

* * *

I shall now take up the details of Mr. Spencer's reply:

I.

I am sorry to see that Mr. Spencer, instead of frankly acknowledging his errors, has taken refuge in discrediting the translations, which might very easily have been examined either by himself or by friends of his; especially as the German original of the most important passages, wherever any doubt might arise, and also of those expressions on the misconception of which Mr. Spencer bases his unfavorable opinion of Kant, were added in foot-notes.

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*See *Fundamental Problems*, pp. 197–206; and *The Ethical Problem*, p. 32, seq., especially p. 33, lines 18–20.

II.

But Mr. Spencer adduces, as if it were a fact, an instance of my grave mistakes. He says that I failed to distinguish between "consciousness" and "conscientiousness." Mr. Spencer makes much of a small matter, which, if it were as he assumes, would have to be considered as a misprint.

Mr. Spencer's statement is so positive that it must make on any reader the impression of being indubitably true. However, in the whole first article of mine, and indeed in both articles, "conscientiousness" is nowhere mentioned and it would be wrong to replace the word "consciousness" in any of the passages in which it occurs by "conscientiousness."

I should be glad if Mr. Spencer would kindly point out to me the passage which he had in mind when making his statement, for since there is not even so much as an occasion for confounding consciousness and conscientiousness, I stand here before a psychological problem. Mr. Spencer's statement is a perfect riddle to me. Either I have a negative hallucination, as psychologists call it, so that I do not see what is really there, or Mr. Spencer must have had a positive hallucination. That which Mr. Spencer has read into my article, was never written and it is not there. The alleged fact to which he refers, does not exist.

This kind of erroneous reference into which Mr. Spencer has inadvertently fallen is a very grievous mistake. It appears more serious than a simple slip of the pen, when we consider that Mr. Spencer uses the statement for the purpose of incrimination. He justifies upon this exceedingly slender basis his doubt concerning the correctness of the translations of the quoted passages, and Mr. Spencer's doubt concerning the correctness of these translations is his main argument for rejecting my criticisms *in toto*.

It is not impossible, indeed it is probable, that Mr. Spencer meant "conscience" instead of "conscientiousness." There is one passage in which a superficial reader might have expected "conscience" in place of consciousness." However that does not occur in any of the translations, but in a paragraph where I speak on my

own account. This passage appears in the appended reprint on page 23, line 14. Whatever anybody might have expected in that passage, I certainly intended to say "consciousness," and only a hasty reader, only he who might merely read the first line of the paragraph, would consider the word "consciousness" a mistake.

To avoid any equivocation, however, even to hasty readers, and to guard against a misconstruction such as Mr. Spencer possibly has given to the sentence, I propose to alter the passage by adding a few words as follows:

"It is quite true that *not only conscience*, *but* every state of consciousness is a feeling," etc.

The italicised words are inserted, simply to show that here I mean "consciousness," and *not* "conscience." For the rest, they do not alter in the least the sense of the sentence. In this passage as throughout the whole article the terms "consciousness," and "conscience" have been used properly.

* * *

Observing that Mr. Spencer appears to have committed the same mistake for which he erroneously blames me, I do not mean to say that he "failed to distinguish between" conscientiousness and conscience. I should rather regard it as trifling on my part if I drew this inference from what is either a slip of the pen or an oversight in proof-reading. But it strikes me that that knavish rogue among the fairies whom Shakespeare calls Puck and scientists define as chance or coincidence played in a fit of anger and perhaps from a sentiment of pardonable irony a humorous trick upon Mr. Spencer. The moral of it is that when an author censures his fellow authors with undue severity for things that might be mere misprints, he should keep a close eye on his own printer's devil.

III.

Mr. Spencer discredits my knowledge of Kant. He says of me:

"One may be excused for thinking that possibly Dr. Carus has read into some of Kant's expressions, meanings which they do not rightly bear."

I did not give Mr. Spencer any occasion for making this personal reflection. I do not boast of any extraordinary familiarity

with Kant's writings. There are innumerable German and also English and American scholars and philosophers who know Kant almost by heart. But the question at issue is not what I conceive Kant's ideas to be, but what Kant has really said, and I was very careful in letting Kant speak for himself.

My criticism of Mr. Spencer's conception of Kant consisted almost exclusively in collating and contrasting Mr. Spencer's views of Kant with quotations from Kant's works. How can I read anything into some of Kant's expressions, if I present translations of the expressions themselves, adding thereto in foot-notes the original whenever doubts could arise? And the general drift of the quotations alone suffices to overthrow Mr. Spencer's conception of Kant.

The truth is that Mr. Spencer committed the mistake himself, for which he censures me unjustly. "Mr. Spencer has read into some of Kant's expressions meanings which they do not rightly bear."

IV.

But Mr. Spencer adduces a fact, which, if it were as Mr. Spencer represents it, would show an inability on my part of making important distinctions. He says of me:

"He blames the English for mistranslating Kant, since they have said 'Kant maintained that Space and Time are intuitions,' which is quite untrue, for they have everywhere described him as maintaining that Space and Time are *forms* of intuition."

This is a double mistake: (1) Kant and his translators did not make the distinction of which Mr. Spencer speaks, and (2) the quotation Mr. Spencer makes from my article is represented to mean something different from what it actually means in the context.

Before I speak for myself as to what I actually said, let us state the facts concerning Kant's usage of the terms "intuitions" and "forms of intuition."

Kant defines in § 1 of his "Critique of Pure Reason" what he understands by "Transcendental Æsthetic." He distinguishes between "empirical intuition" (*empirische Anschauung*) and "pure intuition" (*reine Anschauung*). He says:

"That sort of intuition which relates to an object by means of sensation, is called an empirical intuition."

Representations contain besides that which belongs to sensation some other elements. Kant says:

"That which effects that the content of the phenomenon can be arranged under certain relations, I call its *form*."

And later on he continues:

"This pure form of sensibility I shall call pure intuition."

These are Kant's phrases in J. M. D. Meiklejohn's well known translation. The term "pure intuition" is repeated again and again, and we find frequently added by way of explanation the phrases "as a mere form of sensibility," "the mere form of phenomena," "forms of sensuous intuition," and also (as Mr. Spencer emphasises as the only correct way) "forms of intuition."

Kant says:

1) "*Diese reine Form der Sinnlichkeit wird auch selber reine Anschauung heissen.* § 1.

2) "*Zweitens werden wir von dieser (der empirischen Anschauung) noch alles abtrennen, damit nichts als reine Anschauung und die blosse Form der Erscheinungen übrig bleibe.* § 1.

3) "*Raum . . . . muss ursprünglich Anschauung sein.* § 3.

4) "*Der Raum ist nichts anderes als nur die Form aller Erscheinungen äusserer Sinne.* § 3.

5) "*Der Raum aber betrifft nur die reine Form der Anschauung.* (This passage appears in the first edition only, the paragraph containing it is omitted in the second edition.) § 3.

6) "*Die Zeit ist . . . . eine reine Form der sinnlichen Anschauung. . . .* § 4.

7) "*Es muss ihr* unmittelbare Anschauung zum Grunde liegen.* § 4.

8) "*Die Zeit ist nichts anderes als die Form des inneren Sinnes.* § 6.

9) ". . . . *dass die Vorstellung der Zeit selbst Anschauung sei.* § 6.

10) "*Wir haben nun . . . . reine Anschauung a priori, Raum und Zeit.* § 10. *Beschluss der transcendentalen Æsthetik.*"

These quotations do not pretend to be exhaustive, nor is that necessary for the present purpose.

Kant, as we learn from these quotations, makes no distinction between *reine Anschauung* and *Form der Anschauung*. He uses most frequently the term *reine Anschauung* and designates in several places

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* Second edition reads "*ihnen*" in place of "*ihr*," viz. *der Zeit*.. The word "*ihnen*" refers to *Theilvorstellungen der Zeit*.

Space and Time simply as *Anschauung*. (See the quotations 3, 7, and 9.) So far as I can gather from a renewed perusal, the expression proposed by Mr. Spencer, "form of intuition," *Form der Anschauung*, occurs only once and that too in a passage omitted in the second edition.

It is almost redundant to add that the English translators and interpreters of Kant follow the original pretty closely. Accordingly it is actually incorrect "that they have everywhere (!) described Kant as maintaining that Space and Time are *forms* of intuition." In addition to the quotations from Meiklejohn, I call Mr. Spencer's attention to William Flemming's "Vocabulary of Philosophy" (4th ed., edited by Henry Calderwood) which reads *sub voce* "Intuition," p. 228 with reference to Kant's view:

"Space and time are *intuitions* of sense."

To say "Time and Space are forms of intuition" is quite correct according to Kantian terminology. No objection can be made to Mr. Spencer on that ground. But to say "Time and Space are intuitions" is also quite correct, and Mr. Spencer is wrong in censuring the expression.

Why does Mr. Spencer rebuke me so severely on a point which is of no consequence? He appears confident that I have betrayed an unpardonable misconception of Kant's philosophy. But having pointed out by quotations from Kant that this is not so, I shall now proceed to explain why the quotation which Mr. Spencer makes from my article, although the eight words in quotation marks are literally quoted, is a misquotation. It is torn out of its context. I did not blame the English translators of Kant at all, but I blamed his interpreters, among whom the English interpreters (not all English interpreters, but certainly some of them) are the worst, for "mutilating Kant's best thoughts, so that this hero of progress appears as a stronghold of antiquated views"; and as an instance I called attention to the misconception of Kant's term *Anschauung*, saying:

"How different is Kant's philosophy, for instance, if his position with reference to time and space is mistaken! 'Time and Space are our *Anschauung*,' Kant says. But his English translators declare 'Kant maintained that space and time are in-

tuitions.' What a difference it makes if intuition is interpreted in the sense applied to it by the English intuitionalist school instead of its being taken in the original meaning of the word *Anschauung*."

The word "intuition" implies something mysterious; the word *Anschauung* denotes that which is immediately perceived, simply, as it were, by looking at it. So especially the sense-perceptions of the things before us are *Anschauungen*.

Mr. Spencer, believing that he had caught me in making unawares a blunder, tears the passage out of its context, ignores its purport, makes a point of an antithesis which had nothing in the world to do with the topic under discussion, only to throw on me the opprobrium of incompetence. Even if Mr. Spencer's antithesis of "intuition" and "forms of intuition" were of any consequence (as, unfortunately for Mr. Spencer, it is not), it would count for nothing against me because I did not speak of "forms" in the passage referred to, I simply alluded to one misinterpretation of the term *Anschauung*, which is quite common among English Kantians. It was not required by the purpose I had in view, to enter into any details as to what kind of *Anschauung* I meant, and an allusion to "form" or to any other subject would have served only to confound the idea which I intended to set forth in the paragraph from which Mr. Spencer quotes.

Misquotation of this kind, into which Mr. Spencer was inveigled by a hasty reading, should be avoided with utmost care, for it involves an insinuation. It leads away from the main point under discussion to side issues, and it misrepresents the author from whom the quotation is made. It insinuates a meaning which the passage does not bear and which was not even thought of in the context out of which it is torn.

Mr. Spencer quotes the passage as if I had preferred the term "intuition" to the term "form of intuition," or at least, as if I had no idea that Kant conceives Time and Space as "forms." Yet Mr. Spencer in trying to make out a point against me betrays his own lack of information. Kant insisted most emphatically on calling the forms of our sensibility (i. e. space and time) "*Anschauungen*."

But Mr. Spencer's case is worse still. While he insists upon the statement that according to the translators of Kant space and time are "forms of intuition," which is at least correct, he uses twice in the very same paragraph the expression that according to Kant "space and time are forms of thought," which is incorrect. The forms of thought according to Kantian terminology are not space and time but the domain of the transcendental logic. Anyone who confounds the two terms "forms of intuition" and "forms of thought" proves himself unable to form a correct opinion on Kant's philosophy. That is just characteristic of Kant that he regards time and space not as thought, nor as forms of thought, but as *Anschauungen* and in contradistinction to sense-intuitions (i. e. sensations) he calls them *reine Anschauungen* or *Formen der Anschauung.*

V.

Mr. Spencer commenting upon his criticism of Kant's idea of a Good Will, says :

"I find that in the above three paragraphs I have done Kant less than justice and more than justice—less, in assuming that his evolutionary view was limited to the genesis of our sidereal system, and more, in assuming that he had not contradicted himself.

"Clearly, I am indebted to Dr. Carus for enabling me to prove that Kant's defence of his theory of 'a good will' is, by his own showing, baseless."

Kant's idea of a good will has nothing to do with evolution, and we can abstain here from discussing whether or not Kant was an evolutionist. Whether evolution is true or not, what difference does it make to the proposition, that a good will is the only thing which can be called good without further qualification (*ohne Einschränkuug*)? Pleasure is good, but it is not absolutely good, there are cases in which pleasure is a very bad thing. We must qualify our statement and limit it to special cases. A good will, however, says Kant, is in itself good under all circumstances.

Did Mr. Spencer prove the baselessness of Kant's proposition by proving evolution? Is it inconsistent to believe in evolution and at the same time to regard a good will as absolutely good, as good without reserve or limitation? I think not!

VI.

Mr. Spencer in admitting that "the general drift of the passages quoted makes it tolerably clear that Kant must have believed in the operation of natural causes . . . . in producing organic forms," adds:

"He does not, however, extend the theory of natural genesis to the exclusion of the theory of supernatural genesis."

How does Mr. Spencer prove his statement? Does he quote a passage from Kant which expresses his belief in supernaturalism? No, Mr. Spencer does not quote Kant, and it would be difficult to find a passage to suit that purpose. Mr. Spencer adduces a few unmeaning phrases gleaned at random and torn out of their context, and from these phrases he concludes that Kant believed in the supernatural. Kant spoke somewhere of "the wisdom of nature" who has things so arranged that the species might be preserved. If the wisdom of nature in preserving the species is to be taken literally, the phrase might prove that Kant believed nature to be a wise old woman. Kant spoke further of "the germ of reason placed in man whereby he is destined to social intercourse." Does the usage of the word "destined" really "imply divine intervention," as Mr. Spencer says? Mr. Spencer adds:

"And this [viz. Kant's usage of these phrases] shows that I was justified in ascribing to him the belief that Space and Time, as forms of thought [sic!], are supernatural endowments."

What might we not prove by this kind of loose argumentation!

Kant did not introduce any supernatural explanations; on the contrary, he proposed to exclude "supernatural genesis." He says e. g. in a passage of the "Critique of Judgment" quoted on page 41 of the appendix:

"If we assume occasionalism for the production of organised beings, nature is thereby wholly discarded . . . . therefore it cannot be supposed that this system is accepted by anyone who has had to do with philosophy."

And furthermore Kant rejects the partial admission of the supernatural, saying:

"As though it were not the same to make the required forms arise in a supernatural manner at the beginning of the world as during its progress."

Mr. Spencer charges Kant with inconsistency. We do not intend to say that Kant was in all the phases of his development consistent with himself. But we do say that the charge of Mr. Spencer against Kant consists in this: the real Kant has said things which are incompatible with Mr. Spencer's view of Kant.

This settles the sixth point.

VII.

Mr. Spencer's reply to my criticism is a very strange piece of controversy and I have actually been at a loss, how to account for it.

The situation can be explained only by assuming that Mr. Spencer, being an impatient reader, when finding out that he disagreed with my propositions, could go no further and wrote his reply to me without having read my articles. This is very hard on a critic who, carefully avoiding everything that might look like fault-finding, is painstakingly careful in giving to the author criticised every means of investigating the truth himself and helps him in a friendly way to correct his errors.

There is only one consolation for me, which is, that I am in good company. The great thinker of Koenigsberg is very severely censured in almost all of Mr. Spencer's writings for ideas which he never held. And now Mr. Spencer confesses openly and with ingenuous sincerity, that his knowledge of Kant's writings is extremely limited. But why he condemns a man of whom he knows so little Mr. Spencer does not tell us.

Mr. Spencer says:

"My knowledge of Kant's writings is extremely limited. In 1844 a translation of his "Critique of Pure Reason" (then I think lately published) fell into my hands, and I read the first few pages enunciating his doctrine of Time and Space: my peremptory rejection of which caused me to lay the book down.

"Twice since then the same thing has happened; for, being an impatient reader, when I disagree with the cardinal propositions of a work I can go no further.

"One other thing I knew. By indirect references I was made aware that Kant had propounded the idea that celestial bodies have been formed by the aggregation of diffused matter. Beyond this my knowledge of his conceptions did not extend; and my supposition that his evolutionary conception had stopped short with the genesis of sun, stars, and planets was due to the fact that his doctrine of Time and

Space, as forms of thought [sic] anteceding experience, implied a supernatural origin inconsistent with the hypothesis of natural genesis."

Kant has been a leader in thought for the last century. It is very important to criticise his ideas wherever they are wrong, but his errors cannot be conquered by *ex cathedra* denunciations.

Darwin's habits in investigating and weighing the pro and con of a question were very different from Mr. Spencer's, and Darwin's success is in no small degree due to the sternness with which he adhered to certain rules of reading and studying. We find in his "Autobiography" certain reminiscences labeled "important" from which the following is most instructive:

"I had also, during many years, followed a golden rule, namely, that whenever a published fact, a new observation or a thought, came across me, which was opposed to my general results, to make a memorandum of it without fail, for I had found by experience that such facts and thoughts were far more apt to escape from the memory than favorable ones."

Experience teaches that we can learn most from those authors with whom we do not agree. The ethics of reading and studying demand other habits than laying a book down when we disagree with its cardinal propositions. Such habits prevent progress and create prejudices.

* * *

Mr. Spencer has not answered my criticism at all. Mr. Spencer did not even take into consideration the passages quoted from Kant. He republished all the false statements of Kant's views, so inconsiderately made, together with all the perverse opinions based upon them. The assurance with which Mr. Spencer makes statements which have no foundation whatever is really perplexing even to a man who is well informed on the subject, and it will go far to convince the unwary reader. What, however, shall become of the general tenor of philosophical criticism and controversy if a man of Mr. Spencer's reputation is so indifferent about being informed concerning the exact views of his adversary, if he is so careless in presenting them, if he makes positively erroneous statements on confessedly mere "supposition," and finally, if in consequence thereof

he is flagrantly unjust in censuring errors which arise only from his own too prolific imagination?

We feel confident that Mr. Spencer will explain his side of the question satisfactorily. His mistakes being undeniable, we do not believe that he will seek to deny them. Yet we trust that Mr. Spencer as soon as he finds himself at fault, will not even make an attempt at palliation, that he will not blink the frank acknowledgment of his misstatements and also of having treated Kant with injustice. A man who has devoted his life to the search for truth will not suffer any blot to remain on his escutcheon.

EDITOR.

WHAT DOES ANSCHAUUNG MEAN?

MR. SPENCER'S erroneous statement that Kant conceives space and time as forms of thought instead of forms of intuition induces me to make a few explanatory remarks concerning the term *Anschauung*.

Kant means that space and time are immediately given in experience and not inferences drawn from the data of experience; they are not thoughts, but objects of direct perception.

Sense-impressions are data, they are prior to ideas, the latter being constructions made out of sense-impressions. Sense-impressions are facts, but ideas are of an inferential nature; they are (to use Lloyd Morgan's excellent term) constructs. Now Kant claims that space and time are in the same predicament: they also are immediately given, they also are *Anschauungen*. Kant did not trouble himself much to prove that they are forms; he seems to have taken that for granted. But he was very careful to show that they are not ideas, not thoughts, not abstractions, not generalisations, but that they are as direct data as are sense-impressions and he calls the knowledge which man has by directly facing the object of knowledge "*Anschauung*."

The conclusion which Kant draws from this may be characterised as follows:

Sensations are not things but appearances; they are subjective, not objective, they are not the objects themselves but what our sensibility makes of objects. Space and time being *Anschauungen*, Kant argues that they are of the same kind as the sense-data of knowledge, that they are inherent in our nature. Thus Kant maintains:

"Sensations are the products of our sensibility, and space and time are the forms of our sensibility."

The word *Anschauung* has been a *crux interpretum* since translations have been made from Kant, and it is quite true that no adequate word to express it, exists in English. I enjoyed of late a discussion on the subject with Mr. Francis C. Russell who called my attention to several notes in *The Journal of Speculative Philosophy*. The following is from the pen of Dr. W. T. Harris (Vol. II, p. 191):

"Through a singular chance, the present number of the Journal contains two notes from two contributors on the proper translation of the German word *Anschauung*. Mr. Kroeger holds that the word *Anschauung*, as used by Fichte and also by Kant, denotes an act of the Ego which the English word *Intuition* does not at all express, but for which the English word 'contemplation' is an exact equivalent. Mr. Peirce suggests that no person whose native tongue is English will translate *Anschauung* by another word than *Intuition*. Whether there is a failure to understand English on the one hand or German on the other, the Editor does not care to inquire. It is certain that while intuition has been adopted generally as an equivalent for the word under consideration both by English and French translators, yet it was a wide departure from the ordinary English use of the term. Besides this, we have no English verb *intuite* (at least in the Dictionaries), and the reader will find that the verb used by Meiklejohn (in the translation of Kant's *Kritik*) for it, is *contemplate*, and the same rendering is given by Smith in his excellent translation of Fichte's Popular Works (London, 1849)."

Mr. Charles S. Peirce says:

"No person whose native tongue is English will need to be informed that contemplation is essentially (1) protracted (2) voluntary, and (3) an action, and that it is never used for that which is set forth to the mind in this act. A foreigner can convince himself of this by the proper study of English writers. Thus, Locke (Essay concerning Human Understanding, Book II., chap. 19, § 1) says, 'If it [an idea] be held there [in view] long under attentive consideration, 'tis *contemplation*'; and again, (*Ibid.*, Book II., chap. 10, § 1) 'Keeping the *Idea*, which is brought into it [the mind] for some time actually in view, which is called *Contemplation*.' This term is therefore unfitted to translate *Anschauung;* for this latter does not imply an act which is necessarily protracted or voluntary, and denotes most usually a mental presentation, sometimes a faculty, less often the reception of an impression in the mind, and seldom, if ever, an action.

"To the translation of *Anschauung* by intuition, there is, at least, no such insufferable objection. Etymologically the two words precisely correspond. The original philosophical meaning of intuition was a cognition of the present manifold in that character; and it is now commonly used, as a modern writer says, 'to in-

clude all the products of the perceptive (external or internal) and imaginative faculties; every act of consciousness, in short, of which the immediate object is an *individual*, thing, act, or state of mind, presented under the condition of distinct existence in space and time.' Finally, we have the authority of Kant's own example for translating his *Anschauung* by *Intuitus;* and, indeed, this is the common usage of Germans writing Latin. Moreover, *intuitiv* frequently replaces *anschauend* or *anschaulich*. If this constitutes a misunderstanding of Kant, it is one which is shared by himself and nearly all his countrymen" (*ibid.* p. 152 et seqq).

Mr. Peirce adds the following explanation concerning the term intuition in another note (*ibid.* p. 103):

"The word *intuitus* first occurs as a technical term in St. Anselm's Monologium. He wished to distinguish between our knowledge of God and our knowledge of finite things (and, in the next world, of God, also); and thinking of the saying of St. Paul, *Videmus nunc per speculum in ænigmate: tunc autem facie ad faciem*, he called the former *speculation* and the latter *intuition*. This use of 'speculation' did not take root, because that word already had another exact and widely different meaning.

"In the middle ages, the term 'intuitive cognition' had two principal senses, 1st, as opposed to abstractive cognition, it meant the knowledge of the present as present, and this is its meaning in Anselm; but 2d, as no intuitive cognition was allowed to be determined by a previous cognition, it came to be used as the opposite of discursive cognition (see Scotus, In sentent. lib. 2, dist. 3, qu. 9), and this is nearly the sense in which I employ it. This is also nearly the sense in which Kant uses it, the former distinction being expressed by his *sensuous* and *non-sensuous*. (See Werke, herausg. Rosenkrantz, Thl. 2, S. 713, 31, 41, 100, u. s. w.)

"An enumeration of six meanings of intuition may be found in Hamilton's Reid p. 759."

If we have to choose between the two translations "intuition" and "contemplation," we should with Mr. Peirce decidedly prefer the word "intuition." The word contemplation corresponds to the German *Betrachtung* and all that Mr. Peirce says against it holds good. But we must confess that the term intuition (as Mr. Peirce himself seems to grant) is not a very good translation either. The term intuition has other meanings which interfere with the correct meaning of *Anschauung* and was actually productive of much confusion.

The English term intuition is strongly tinged with the same meaning that is attached to the German word *Intuition*. It means an inexplicable kind of direct information from some supernatural sources, which mystics claim to possess as the means of their rev-

elations. In this sense Goethe characterises it satirically in Faust (Scene XIV). Mephistopheles describes the process as follows:

> A blessing drawn from supernatural fountains!
> In night and dew to lie upon the mountains;
> All Heaven and Earth in rapture penetrating;
> Thyself to Godhood haughtily inflating;
> To grub with yearning force through Earth's dark marrow,
> Compress the six days' work within thy bosom narrow,—
> To taste, I know not what, in haughty power,
> Thine own ecstatic life on all things shower,
> Thine earthly self behind thee cast,
> And then the lofty intuition [with a gesture] at last.

The satire is good on *Intuition* but it would not apply to *Anschauung*, for the latter word excludes rigidly any mysticism or supernaturalism which the former essentially involves. To employ the term "intuition" for both ideas must necessarily weaken the meaning of *Anschauung*.

Besides we should bear in mind that the German *Anschauung* is vernacular and should find a correspondent Saxon word. Such Latin words as intuition convey in English as much as in German the impression of being terms denoting something very abstract. Vernacular terms much more strongly indicate the immediateness and directness which is implied in *Anschauung*. In my conversation with Mr. Russell, we tried to coin a new word that should cover the meaning of *Anschauung* as an act of "atlooking" and the word "atsight" readily suggested itself.

The word "atsight" is an exact English equivalent of the German *Anschauung*. It describes the looking at an object in its immediate presence. At the same time the word is readily understood, while philologically considered, its formation is fully justified by the existence of the words "insight and foresight."

* * *

One of the most important of Kant's doctrines is the proposition that all thought must ultimately have reference to *Anschauung*, i. e. to atsight. Through atsight only the objects of experience can be given us. All speculations not founded upon this bottom rock of knowledge are mere dreams. This is the maxim of positivism and

it is the basis of all sound philosophy. Says Kant in the "Anhang" to his Prolegomena (in reply to a critic who had misunderstood his idealism) as a summary statement of his views:

"*Der Satz aller echten Idealisten, von der eleatischen Schule an bis zum Bischof Berkley, ist in dieser Formel enthalten: 'alle Erkenntnis durch Sinne und Erfahrung ist nichts als lauter Schein, und nur in den Ideen des reinen Verstandes und Vernunft ist Wahrheit.'*

"*Der Grundsatz, der meinen Idealismus durchgängig regiert und bestimmt, ist dagegen: 'Alles Erkenntnis von Dingen, aus blossem reinen Verstande oder reiner Vernunft, ist nichts als lauter Schein, und nur in der Erfahrung ist Wahrheit.'*"

"The doctrine of all genuine idealists from the Eleatic School down to Bishop Berkeley is contained in this formula: All cognition through the senses and experience is nothing but illusion; and in the ideas of the pure understanding and reason alone is truth.

"The principle, however, that rules and determines my idealism throughout is this: All cognition out of pure understanding or pure reason is nothing but mere illusion and in experience alone is truth."

Kant then proposes in order to avoid equivocation to call his views "formal or critical idealism," adding that his idealism made any other idealism impossible. Criticism truly is the beginning of philosophy as an objective science. It gives the *coup de grace* to those worthless declamations which still pass among many as philosophy. Says Kant:

"*So viel ist gewiss: wer einmal Kritik gekostet hat, den ekelt auf immer alles dogmatische Gewäsche.*"

"That much is certain: He who has once tasted critique will be forever disgusted with all dogmatic twaddle."

It is strange that in spite of Kant's explicit declaration, which leaves no doubt about the positive spirit that pervades the principles of his philosophy, he is still misunderstood by his opponents no less than by those who profess to be his disciples.

* * *

There is no occasion now to treat the subject exhaustively, but it may be permitted to add a few remarks on Kant's proposition that space and time are atsights.

We must distinguish three things:

1) Objective space.

2) Space as atsight, and

3) Space-conception.

Space as atsight is the datum. It is the immediate presence of relations among the sensory impressions. This, however, is not as yet that something which we generally call space. That which generally goes by the name of space is a construction built out of the relational data that obtain in experience and we propose to call it space-conception. Our space-conception, accordingly, (and here I include the mathematician's space-conception) is based upon space as atsight, but it is more than atsight. It is an inference made therefrom, it is the product of experience. Space-conception, however, is as are all legitimate noumena, no mere subjective illusion, it possesses objective validity ; it describes some real existence and this real existence represented in space-conception is what may be called objective space.

Objective space is the form of reality. Space as atsight is the form of sensibility. Space as space-conception is a construct of an abstract nature and serves as a description or plan of the form of reality.

The same is true of Time. Time as atsight is the relation of succession obtaining in the changes of experience. Time as time-conception is the noumenon constructed out of these data to represent that feature of reality which may for lack of a better term be called objective time.

Briefly : Space and Time are not things, not essences, not entities, but certain features of existence. They are the forms of reality. When existence finds a representation in the feelings of a sentient being, time and space appear as their forms, and these forms furnish the material out of which are built the conceptions of Space and Time.

EDITOR.

THE LAW OF MIND.

IN an article published in *The Monist* for January 1891, I endeavored to show what ideas ought to form the warp of a system of philosophy, and particularly emphasised that of absolute chance. In the number of April 1892, I argued further in favor of that way of thinking, which it will be convenient to christen *tychism* (from τύχη, chance). A serious student of philosophy will be in no haste to accept or reject this doctrine; but he will see in it one of the chief attitudes which speculative thought may take, feeling that it is not for an individual, nor for an age, to pronounce upon a fundamental question of philosophy. That is a task for a whole era to work out. I have begun by showing that *tychism* must give birth to an evolutionary cosmology, in which all the regularities of nature and of mind are regarded as products of growth, and to a Schelling-fashioned idealism which holds matter to be mere specialised and partially deadened mind. I may mention, for the benefit of those who are curious in studying mental biographies, that I was born and reared in the neighborhood of Concord,—I mean in Cambridge,—at the time when Emerson, Hedge, and their friends were disseminating the ideas that they had caught from Schelling, and Schelling from Plotinus, from Boehm, or from God knows what minds stricken with the monstrous mysticism of the East. But the atmosphere of Cambridge held many an antiseptic against Concord transcendentalism; and I am not conscious of having contracted any of that virus. Nevertheless, it is probable that some cultured bacilli, some benignant form of the disease was implanted in my soul, unawares, and that now, after long incubation, it comes to the surface, modified by

mathematical conceptions and by training in physical investigations.

The next step in the study of cosmology must be to examine the general law of mental action. In doing this, I shall for the time drop my tychism out of view, in order to allow a free and independent expansion to another conception signalised in my first *Monist*-paper as one of the most indispensable to philosophy, though it was not there dwelt upon ; I mean the idea of continuity. The tendency to regard continuity, in the sense in which I shall define it, as an idea of prime importance in philosophy may conveniently be termed *synechism*. The present paper is intended chiefly to show what synechism is, and what it leads to. I attempted, a good many years ago, to develop this doctrine in the *Journal of Speculative Philosophy* (Vol. III.); but I am able now to improve upon that exposition, in which I was a little blinded by nominalistic prepossessions. I refer to it, because students may possibly find that some points not sufficiently explained in the present paper are cleared up in those earlier ones.

WHAT THE LAW IS.

Logical analysis applied to mental phenomena shows that there is but one law of mind, namely, that ideas tend to spread continuously and to affect certain others which stand to them in a peculiar relation of affectibility. In this spreading they lose intensity, and especially the power of affecting others, but gain generality and become welded with other ideas.

I set down this formula at the beginning, for convenience ; and now proceed to comment upon it.

INDIVIDUALITY OF IDEAS.

We are accustomed to speak of ideas as reproduced, as passed from mind to mind, as similar or dissimilar to one another, and, in short, as if they were substantial things ; nor can any reasonable objection be raised to such expressions. But taking the word "idea" in the sense of an event in an individual consciousness, it is clear that an idea once past is gone forever, and any supposed recurrence of it is another idea. These two ideas are not present in the same

state of consciousness, and therefore cannot possibly be compared. To say, therefore, that they are similar can only mean that an occult power from the depths of the soul forces us to connect them in our thoughts after they are both no more. We may note, here, in passing that of the two generally recognised principles of association, contiguity and similarity, the former is a connection due to a power without, the latter a connection due to a power within.

But what can it mean to say that ideas wholly past are thought of at all, any longer? They are utterly unknowable. What distinct meaning can attach to saying that an idea in the past in any way affects an idea in the future, from which it is completely detached? A phrase between the assertion and the denial of which there can in no case be any sensible difference is mere gibberish.

I will not dwell further upon this point, because it is a commonplace of philosophy.

CONTINUITY OF IDEAS.

We have here before us a question of difficulty, analogous to the question of nominalism and realism. But when once it has been clearly formulated, logic leaves room for one answer only. How can a past idea be present? Can it be present vicariously? To a certain extent, perhaps; but not merely so; for then the question would arise how the past idea can be related to its vicarious representation. The relation, being between ideas, can only exist in some consciousness: now that past idea was in no consciousness but that past consciousness that alone contained it; and that did not embrace the vicarious idea.

Some minds will here jump to the conclusion that a past idea cannot in any sense be present. But that is hasty and illogical. How extravagant, too, to pronounce our whole knowledge of the past to be mere delusion! Yet it would seem that the past is as completely beyond the bonds of possible experience as a Kantian thing-in-itself.

How can a past idea be present? Not vicariously. Then, only by direct perception. In other words, to be present, it must be *ipso facto* present. That is, it cannot be wholly past; it can only be

going, infinitesimally past, less past than any assignable past date. We are thus brought to the conclusion that the present is connected with the past by a series of real infinitesimal steps.

It has already been suggested by psychologists that consciousness necessarily embraces an interval of time. But if a finite time be meant, the opinion is not tenable. If the sensation that precedes the present by half a second were still immediately before me, then, on the same principle the sensation preceding that would be immediately present, and so on *ad infinitum*. Now, since there is a time, say a year, at the end of which an idea is no longer *ipso facto* present, it follows that this is true of any finite interval, however short.

But yet consciousness must essentially cover an interval of time; for if it did not, we could gain no knowledge of time, and not merely no veracious cognition of it, but no conception whatever. We are, therefore, forced to say that we are immediately conscious through an infinitesimal interval of time.

This is all that is requisite. For, in this infinitesimal interval, not only is consciousness continuous in a subjective sense, that is, considered as a subject or substance having the attribute of duration; but also, because it is immediate consciousness, its object is *ipso facto* continuous. In fact, this infinitesimally spread-out consciousness is a direct feeling of its contents as spread out. This will be further elucidated below. In an infinitesimal interval we directly perceive the temporal sequence of its beginning, middle, and end,—not, of course, in the way of recognition, for recognition is only of the past, but in the way of immediate feeling. Now upon this interval follows another, whose beginning is the middle of the former, and whose middle is the end of the former. Here, we have an immediate perception of the temporal sequence of its beginning, middle, and end, or say of the second, third, and fourth instants. From these two immediate perceptions, we gain a mediate, or inferential, perception of the relation of all four instants. This mediate perception is objectively, or as to the object represented, spread over the four instants; but subjectively, or as itself the subject of duration, it is completely embraced in the second moment. [The reader will observe that I use the word *instant* to mean a point

of time, and *moment* to mean an infinitesimal duration.] If it is objected that, upon the theory proposed, we must have more than a mediate perception of the succession of the four instants, I grant it; for the sum of the two infinitesimal intervals is itself infinitesimal, so that it is immediately perceived. It is immediately perceived in the whole interval, but only mediately perceived in the last two thirds of the interval. Now, let there be an indefinite succession of these inferential acts of comparative perception; and it is plain that the last moment will contain objectively the whole series. Let there be, not merely an indefinite succession, but a continuous flow of inference through a finite time; and the result will be a mediate objective consciousness of the whole time in the last moment. In this last moment, the whole series will be recognised, or known as known before, except only the last moment, which of course will be absolutely unrecognisable to itself. Indeed, even this last moment will be recognised like the rest, or, at least be just beginning to be so. There is a little *elenchus*, or appearance of contradiction, here, which the ordinary logic of reflection quite suffices to resolve.

INFINITY AND CONTINUITY, IN GENERAL.

Most of the mathematicians who during the last two generations have treated the differential calculus have been of the opinion that an infinitesimal quantity is an absurdity; although, with their habitual caution, they have often added "or, at any rate, the conception of an infinitesimal is so difficult, that we practically cannot reason about it with confidence and security." Accordingly, the doctrine of limits has been invented to evade the difficulty, or, as some say, to explain the signification of the word "infinitesimal." This doctrine, in one form or another, is taught in all the text-books, though in some of them only as an alternative view of the matter; it answers well enough the purposes of calculation, though even in that application it has its difficulties.

The illumination of the subject by a strict notation for the logic of relatives had shown me clearly and evidently that the idea of an infinitesimal involves no contradiction, before I became acquainted with the writings of Dr. Georg Cantor (though many of these had

already appeared in the *Mathematische Annalen* and in *Borchardt's Journal*, if not yet in the *Acta Mathematica*, all mathematical journals of the first distinction), in which the same view is defended with extraordinary genius and penetrating logic.

The prevalent opinion is that finite numbers are the only ones that we can reason about, at least, in any ordinary mode of reasoning, or, as some authors express it, they are the only numbers that can be reasoned about mathematically. But this is an irrational prejudice. I long ago showed that finite collections are distinguished from infinite ones only by one circumstance and its consequences, namely, that to them is applicable a peculiar and unusual mode of reasoning called by its discoverer, De Morgan, the "syllogism of transposed quantity."

Balzac, in the introduction of his *Physiologie du mariage*, remarks that every young Frenchman boasts of having seduced some Frenchwoman. Now, as a woman can only be seduced once, and there are no more Frenchwomen than Frenchmen, it follows, if these boasts are true, that no French women escape seduction. If their number be finite, the reasoning holds. But since the population is continually increasing, and the seduced are on the average younger than the seducers, the conclusion need not be true. In like manner, De Morgan, as an actuary, might have argued that if an insurance company pays to its insured on an average more than they have ever paid it, including interest, it must lose money. But every modern actuary would see a fallacy in that, since the business is continually on the increase. But should war, or other cataclysm, cause the class of insured to be a finite one, the conclusion would turn out painfully correct, after all. The above two reasonings are examples of the syllogism of transposed quantity.

The proposition that finite and infinite collections are distinguished by the applicability to the former of the syllogism of transposed quantity ought to be regarded as the basal one of scientific arithmetic.

If a person does not know how to reason logically, and I must say that a great many fairly good mathematicians,—yea distinguished ones,—fall under this category, but simply uses a rule of

thumb in blindly drawing inferences like other inferences that have turned out well, he will, of course, be continually falling into error about infinite numbers. The truth is such people do not reason, at all. But for the few who do reason, reasoning about infinite numbers is easier than about finite numbers, because the complicated syllogism of transposed quantity is not called for. For example, that the whole is greater than its part is not an axiom, as that eminently bad reasoner, Euclid, made it to be. It is a theorem readily proved by means of a syllogism of transposed quantity, but not otherwise. Of finite collections it is true, of infinite collections false. Thus, a part of the whole numbers are even numbers. Yet the even numbers are no fewer than all the numbers; an evident proposition since if every number in the whole series of whole numbers be doubled, the result will be the series of even numbers.

1, 2, 3, 4, 5, 6, etc.
2, 4, 6, 8, 10, 12, etc.

So for every number there is a distinct even number. In fact, there are as many distinct doubles of numbers as there are of distinct numbers. But the doubles of numbers are all even numbers.

In truth, of infinite collections there are but two grades of magnitude, the *endless* and the *innumerable*. Just as a finite collection is distinguished from an infinite one by the applicability to it of a special mode of reasoning, the syllogism of transposed quantity, so, as I showed in the paper last referred to, a numerable collection is distinguished from an innumerable one by the applicability to it of a certain mode of reasoning, the Fermatian inference, or, as it is sometimes improperly termed, "mathematical induction."

As an example of this reasoning, Euler's demonstration of the binomial theorem for integral powers may be given. The theorem is that $(x+y)^n$, where n is a whole number, may be expanded into the sum of a series of terms of which the first is $x^n y^0$ and each of the others is derived from the next preceding by diminishing the exponent of x by 1 and multiplying by that exponent and at the same time increasing the exponent of y by 1 and dividing by that increased exponent. Now, suppose this proposition to be true for a certain exponent, $n = M$, then it must also be true for $n = \mathrm{M} + 1$.

For let one of the terms in the expansion of $(x+y)^M$ be written $Ax^p y^q$. Then, this term with the two following will be

$$A\,x^p y^q + A\frac{p}{q+1}\,x^{p-1}y^{q+1} + A\frac{p}{q+1}\frac{p-1}{q+2}\,x^{p-2}y^{q+2}$$

Now, when $(x+y)^M$ is multiplied by $x+y$ to give $(x+y)^{M+1}$, we multiply first by x and then by y instead of by x and add the two results. When we multiply by x, the second of the above three terms will be the only one giving a term involving $x^p y^{q+1}$ and the third will be the only one giving a term in $x^{p-1}y^{q+2}$; and when we multiply by y the first will be the only term giving a term in $x^p y^{q+1}$, and the second will be the only term giving a term in $x^{p-1}y^{q+2}$. Hence, adding like terms, we find that the coefficient of $x^p y^{q+1}$ in the expansion of $(x+y)^{M+1}$ will be the sum of the coefficients of the first two of the above three terms, and that the coefficient of $x^{p-1}y^{q+2}$ will be the sum of the coefficients of the last two terms. Hence, two successive terms in the expansion of $(x+y)^{M+1}$ will be

$$A\left[1+\frac{p}{q+1}\right]x^p y^{q+1} + A\frac{p}{q+1}\left[1+\frac{p-1}{q+2}\right]x^{p-1}y^{q+2}$$

$$= A\frac{p+q+1}{q+1}\,x^p y^{q+1} + A\frac{p+q+1}{q+1}\cdot\frac{p}{q+2}\,x^{p-1}y^{q+2}.$$

It is, thus, seen that the succession of terms follows the rule. Thus if any integral power follows the rule, so also does the next higher power. But the first power obviously follows the rule. Hence, all powers do so.

Such reasoning holds good of any collection of objects capable of being ranged in a series which though it may be endless, can be numbered so that each member of it receives a definite integral number. For instance, all the whole numbers constitute such a numerable collection. Again, all numbers resulting from operating according to any definite rule with any finite number of whole numbers form such a collection. For they may be arranged in a series thus. Let F be the symbol of operation. First operate on 1, giving F(1). Then, operate on a second 1, giving F(1,1). Next, introduce 2, giving 3rd, F(2); 4th, F(2,1); 5th, F(1,2); 6th, F(2,2). Next use a third variable giving 7th, F(1,1,1); 8th, F(2,1,1); 9th, F(1,2,1); 10th, F(2,2,1); 11th, F(1,1,2); 12th, F(2,1,2); 13th, F(1,2,2);

14th, F(2,2,2). Next introduce 3, and so on, alternately introducing new variables and new figures; and in this way it is plain that every arrangement of integral values of the variables will receive a numbered place in the series.*

The class of endless but numerable collections (so called because they can be so ranged that to each one corresponds a distinct whole number) is very large. But there are collections which are certainly innumerable. Such is the collection of all numbers to which endless series of decimals are capable of approximating. It has been recognised since the time of Euclid that certain numbers are surd or incommensurable, and are not exactly expressible by any finite series of decimals, nor by a circulating decimal. Such is the ratio of the circumference of a circle to its diameter, which we know is nearly 3.1415926. The calculation of this number has been carried to over 700 figures without the slightest appearance of regularity in their sequence. The demonstrations that this and many other numbers are incommensurable are perfect. That the entire collection of incommensurable numbers is innumerable has been clearly proved by Cantor. I omit the demonstration; but it is easy to see that to discriminate one from some other would, in general, require the use of an endless series of numbers. Now if they cannot be exactly expressed and discriminated, clearly they cannot be ranged in a linear series.

It is evident that there are as many points on a line or in an interval of time as there are of real numbers in all. These are, therefore, innumerable collections. Many mathematicians have incautiously assumed that the points on a surface or in a solid are more than those on a line. But this has been refuted by Cantor. Indeed, it is obvious that for every set of values of coördinates there is a single distinct number. Suppose, for instance, the values of the coördinates all lie between 0 and + 1. Then if we compose a number by putting in the first decimal place the first figure of the first coördinate, in the second the first figure of the second coördi-

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* This proposition is substantially the same as a theorem of Cantor, though it is enunciated in a much more general form.

nate, and so on, and when the first figures are all dealt out go on to the second figures in like manner, it is plain that the values of the coördinates can be read off from the single resulting number, so that a triad or tetrad of numbers, each having innumerable values, has no more values than a single incommensurable number.

Were the number of dimensions infinite, this would fail; and the collection of infinite sets of numbers having each innumerable variations, might, therefore, be greater than the simple innumerable collection, and might be called *endlessly infinite*. The single individuals of such a collection could not, however, be designated, even approximately, so that this is indeed a magnitude concerning which it would be possible to reason only in the most general way, if at all.

Although there are but two grades of magnitudes of infinite collections, yet when certain conditions are imposed upon the order in which individuals are taken, distinctions of magnitude arise from that cause. Thus, if a simply endless series be doubled by separating each unit into two parts, the successive first parts and also the second parts being taken in the same order as the units from which they are derived, this double endless series will, so long as it is taken in that order, appear as twice as large as the original series. In like manner the product of two innumerable collections, that is, the collection of possible pairs composed of one individual of each, if the order of continuity is to be maintained, is, by virtue of that order, infinitely greater than either of the component collections.

We now come to the difficult question, What is continuity? Kant confounds it with infinite divisibility, saying that the essential character of a continuous series is that between any two members of it a third can always be found. This is an analysis beautifully clear and definite; but unfortunately, it breaks down under the first test. For according to this, the entire series of rational fractions arranged in the order of their magnitude, would be an infinite series, although the rational fractions are numerable, while the points of a line are innumerable. Nay, worse yet, if from that series of fractions any two with all that lie between them be excised, and any number of such finite gaps he made, Kant's definition is still true of the series, though it has lost all appearance of continuity.

Cantor defines a continuous series as one which is *concatenated* and *perfect*. By a concatenated series, he means such a one that if any two points are given in it, and any finite distance, however small, it is possible to proceed from the first point to the second through a succession of points of the series each at a distance from the preceding one less than the given distance. This is true of the series of rational fractions ranged in the order of their magnitude. By a perfect series, he means one which contains every point such that there is no distance so small that this point has not an infinity of points of the series within that distance of it. This is true of the series of numbers between 0 and 1 capable of being expressed by decimals in which only the digits 0 and 1 occur.

It must be granted that Cantor's definition includes every series that is continuous; nor can it be objected that it includes any important or indubitable case of a series not continuous. Nevertheless, it has some serious defects. In the first place, it turns upon metrical considerations; while the distinction between a continuous and a discontinuous series is manifestly non-metrical. In the next place, a perfect series is defined as one containing "every point" of a certain description. But no positive idea is conveyed of what all the points are: that is definition by negation, and cannot be admitted. If that sort of thing were allowed, it would be very easy to say, at once, that the continuous linear series of points is one which contains every point of the line between its extremities. Finally, Cantor's definition does not convey a distinct notion of what the components of the conception of continuity are. It ingeniously wraps up its properties in two separate parcels, but does not display them to our intelligence.

Kant's definition expresses one simple property of a continuum; but it allows of gaps in the series. To mend the definition, it is only necessary to notice how these gaps can occur. Let us suppose, then, a linear series of points extending from a point, A, to a point, B, having a gap from B to a third point, C, and thence extending to a final limit, D; and let us suppose this series conforms to Kant's definition. Then, of the two points, B and C, one or both must be excluded from the series; for otherwise, by the definition, there

would be points between them. That is, if the series contains C, though it contains all the points up to B, it cannot contain B. What is required, therefore, is to state in non-metrical terms that if a series of points up to a limit is included in a continuum the limit is included. It may be remarked that this is the property of a continuum to which Aristotle's attention seems to have been directed when he defines a continuum as something whose parts have a common limit. The property may be exactly stated as follows: If a linear series of points is continuous between two points, A and D, and if an endless series of points be taken, the first of them between A and D and each of the others between the last preceding one and D, then there is a point of the continuous series between all that endless series of points and D, and such that every other point of which this is true lies between this point and D. For example, take any number between 0 and 1, as 0.1; then, any number between 0.1 and 1, as 0.11; then any number between 0.11 and 1, as 0.111; and so on, without end. Then, because the series of real numbers between 0 and 1 is continuous, there must be a *least* real number, greater than every number of that endless series. This property, which may be called the Aristotelicity of the series, together with Kant's property, or its Kanticity, completes the definition of a continuous series.

The property of Aristotelicity may be roughly stated thus: a continuum contains the end point belonging to every endless series of points which it contains. An obvious corollary is that every continuum contains its limits. But in using this principle it is necessary to observe that a series may be continuous except in this, that it omits one or both of the limits.

Our ideas will find expression more conveniently if, instead of points upon a line, we speak of real numbers. Every real number is, in one sense, the limit of a series, for it can be indefinitely approximated to. Whether every real number is a limit of a *regular* series may perhaps be open to doubt. But the series referred to in the definition of Aristotelicity must be understood as including all series whether regular or not. Consequently, it is implied that between any two points an innumerable series of points can be taken.

Every number whose expression in decimals requires but a finite number of places of decimals is commensurable. Therefore, incommensurable numbers suppose an infinitieth place of decimals. The word infinitesimal is simply the Latin form of infinitieth; that is, it is an ordinal formed from *infinitum*, as centesimal from *centum*. Thus, continuity supposes infinitesimal quantities. There is nothing contradictory about the idea of such quantities. In adding and multiplying them the continuity must not be broken up, and consequently they are precisely like any other quantities, except that neither the syllogism of transposed quantity, nor the Fermatian inference applies to them.

If A is a finite quantity and i an infinitesimal, then in a certain sense we may write $A + i = A$. That is to say, this is so for all purposes of measurement. But this principle must not be applied except to get rid of *all* the terms in the highest order of infinitesimals present. As a mathematician, I prefer the method of infinitesimals to that of limits, as far easier and less infested with snares. Indeed, the latter, as stated in some books, involves propositions that are false; but this is not the case with the forms of the method used by Cauchy, Duhamel, and others. As they understand the doctrine of limits, it involves the notion of continuity, and therefore contains in another shape the very same ideas as the doctrine of infinitesimals.

Let us now consider an aspect of the Aristotelical principle which is particularly important in philosophy. Suppose a surface to be part red and part blue; so that every point on it is either red or blue, and, of course, no part can be both red and blue. What, then, is the color of the boundary line between the red and the blue? The answer is that red or blue, to exist at all, must be spread over a surface; and the color of the surface is the color of the surface in the immediate neighborhood of the point. I purposely use a vague form of expression. Now, as the parts of the surface in the immediate neighborhood of any ordinary point upon a curved boundary are half of them red and half blue, it follows that the boundary is half red and half blue. In like manner, we find it necessary to hold that consciousness essentially occupies time; and what is

present to the mind at any ordinary instant, is what is present during a moment in which that instant occurs. Thus, the present is half past and half to come. Again, the color of the parts of a surface at any finite distance from a point, has nothing to do with its color just at that point; and, in the parallel, the feeling at any finite interval from the present has nothing to do with the present feeling, except vicariously. Take another case: the velocity of a particle at any instant of time is its mean velocity during an infinitesimal instant in which that time is contained. Just so my immediate feeling is my feeling through an infinitesimal duration containing the present instant.

ANALYSIS OF TIME.

One of the most marked features about the law of mind is that it makes time to have a definite direction of flow from past to future. The relation of past to future is, in reference to the law of mind, different from the relation of future to past. This makes one of the great contrasts between the law of mind and the law of physical force, where there is no more distinction between the two opposite directions in time than between moving northward and moving southward.

In order, therefore, to analyse the law of mind, we must begin by asking what the flow of time consists in. Now, we find that in reference to any individual state of feeling, all others are of two classes, those which affect this one (or have a tendency to affect it, and what this means we shall inquire shortly), and those which do not. The present is affectible by the past but not by the future.

Moreover, if state A is affected by state B, and state B by state C, then A is affected by state C, though not so much so. It follows, that if A is affectible by B, B is not affectible by A.

If, of two states, each is absolutely unaffectible by the other, they are to be regarded as parts of the same state. They are contemporaneous.

To say that a state is *between* two states means that it affects one and is affected by the other. Between any two states in this sense lies an innumerable series of states affecting one another; and

if a state lies between a given state and any other state which can be reached by inserting states between this state and any third state, these inserted states not immediately affecting or being affected by either, then the second state mentioned immediately affects or is affected by the first, in the sense that in the one the other is *ipso facto* present in a reduced degree.

These propositions involve a definition of time and of its flow. Over and above this definition they involve a doctrine, namely, that every state of feeling is affectible by every earlier state.

THAT FEELINGS HAVE INTENSIVE CONTINUITY.

Time with its continuity logically involves some other kind of continuity than its own. Time, as the universal form of change, cannot exist unless there is something to undergo change, and to undergo a change continuous in time, there must be a continuity of changeable qualities. Of the continuity of intrinsic qualities of feeling we can now form but a feeble conception. The development of the human mind has practically extinguished all feelings, except a few sporadic kinds, sound, colors, smells, warmth, etc., which now appear to be disconnected and disparate. In the case of colors, there is a tridimensional spread of feelings. Originally, all feelings may have been connected in the same way, and the presumption is that the number of dimensions was endless. For development essentially involves a limitation of possibilities. But given a number of dimensions of feeling, all possible varieties are obtainable by varying the intensities of the different elements. Accordingly, time logically supposes a continuous range of intensity in feeling. It follows, then, from the definition of continuity, that when any particular kind of feeling is present, an infinitesimal continuum of all feelings differing infinitesimally from that is present.

THAT FEELINGS HAVE SPATIAL EXTENSION.

Consider a gob of protoplasm, say an amœba or a slime-mould. It does not differ in any radical way from the contents of a nerve-cell, though its functions may be less specialised. There is no

doubt that this slime-mould, or this amœba, or at any rate some similar mass of protoplasm feels. That is to say, it feels when it is in its excited condition. But note how it behaves. When the whole is quiescent and rigid, a place upon it is irritated. Just at this point, an active motion is set up, and this gradually spreads to other parts. In this action, no unity nor relation to a nucleus, or other unitary organ can be discerned. It is a mere amorphous continuum of protoplasm, with feeling passing from one part to another. Nor is there anything like a wave-motion. The activity does not advance to new parts, just as fast as it leaves old parts. Rather, in the beginning, it dies out at a slower rate than that at which it spreads. And while the process is going on, by exciting the mass at another point, a second quite independent state of excitation will be set up. In some places, neither excitation will exist, in others each separately, in still other places, both effects will be added together. Whatever there is in the whole phenomenon to make us think there is feeling in such a mass of protoplasm,—*feeling*, but plainly no *personality*,—goes logically to show that that feeling has a subjective, or substantial, spatial extension, as the excited state has. This is, no doubt, a difficult idea to seize, for the reason that it is a subjective, not an objective, extension. It is not that we have a feeling of bigness; though Professor James, perhaps rightly, teaches that we have. It is that the feeling, as a subject of inhesion, is big. Moreover, our own feelings are focused in attention to such a degree that we are not aware that ideas are not brought to an absolute unity; just as nobody not instructed by special experiment has any idea how very, very little of the field of vision is distinct. Still, we all know how the attention wanders about among our feelings; and this fact shows that those feelings that are not coordinated in attention have a reciprocal externality, although they are present at the same time. But we must not tax introspection to make a phenomenon manifest which essentially involves externality.

Since space is continuous, it follows that there must be an immediate community of feeling between parts of mind infinitesimally near together. Without this, I believe it would have been

impossible for minds external to one another, ever to become co-ordinated, and equally impossible for any coördination to be established in the action of the nerve-matter of one brain.

AFFECTIONS OF IDEAS.

But we are met by the question what is meant by saying that one idea affects another. The unravelment of this problem requires us to trace out phenomena a little further.

Three elements go to make up an idea. The first is its intrinsic quality as a feeling. The second is the energy with which it affects other ideas, an energy which is infinite in the here-and-nowness of immediate sensation, finite and relative in the recency of the past. The third element is the tendency of an idea to bring along other ideas with it.

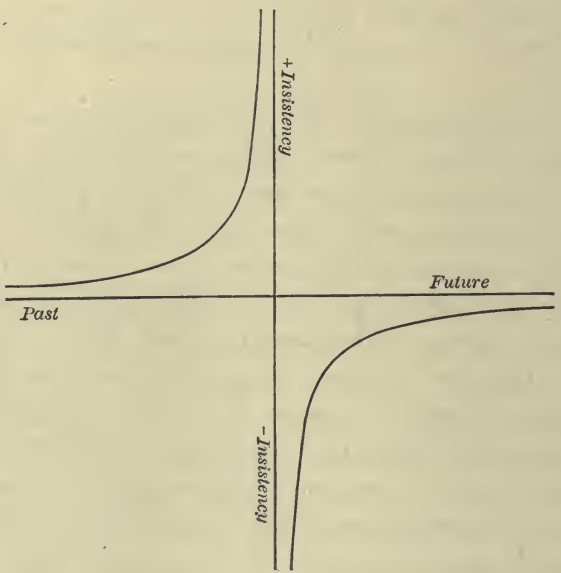
As an idea spreads, its power of affecting other ideas gets rapidly reduced; but its intrinsic quality remains nearly unchanged. It is long years now since I last saw a cardinal in his robes; and my memory of their color has become much dimmed. The color itself, however, is not remembered as dim. I have no inclination to call it a dull red. Thus, the intrinsic quality remains little changed; yet more accurate observation will show a slight reduction of it. The third element, on the other hand, has increased. As well as I can recollect, it seems to me the cardinals I used to see wore robes more scarlet than vermilion is, and highly luminous. Still, I know the color commonly called cardinal is on the crimson side of vermilion and of quite moderate luminosity, and the original idea calls up so many other hues with it, and asserts itself so feebly, that I am unable any longer to isolate it.

A finite interval of time generally contains an innumerable series of feelings; and when these become welded together in association, the result is a general idea. For we have just seen how by continuous spreading an idea becomes generalised.

The first character of a general idea so resulting is that it is living feeling. A continuum of this feeling, infinitesimal in duration, but still embracing innumerable parts, and also, though infinitesimal, entirely unlimited, is immediately present. And in its absence of boundedness a vague possibility of more than is present is directly felt.

Second, in the presence of this continuity of feeling, nominalistic maxims appear futile. There is no doubt about one idea affecting another, when we can directly perceive the one gradually modified and shaping itself into the other. Nor can there any longer be any difficulty about one idea resembling another, when we can pass along the continuous field of quality from one to the other and back again to the point which we had marked.

Third, consider the insistency of an idea. The insistency of a past idea with reference to the present is a quantity which is less the further back that past idea is, and rises to infinity as the past idea



is brought up into coincidence with the present. Here we must make one of those inductive applications of the law of continuity which have produced such great results in all the positive sciences. We must extend the law of insistency into the future. Plainly, the insistency of a future idea with reference to the present is a quantity affected by the minus sign; for it is the present that affects the future, if there be any effect, not the future that affects the present. Accordingly, the curve of insistency is a sort of equilateral hyperbola. [See the figure.] Such a conception is none the less mathematical, that its quantification cannot now be exactly specified.

Now consider the induction which we have here been led into. This curve says that feeling which has not yet emerged into immediate consciousness is already affectible and already affected. In fact, this is habit, by virtue of which an idea is brought up into present consciousness by a bond that had already been established between it, and another idea while it was still *in futuro*.

We can now see what the affection of one idea by another consists in. It is that the affected idea is attached as a logical predicate to the affecting idea as subject. So when a feeling emerges into immediate consciousness, it always appears as a modification of a more or less general object already in the mind. The word suggestion is well adapted to expressing this relation. The future is suggested by, or rather is influenced by the suggestions of, the past.

IDEAS CANNOT BE CONNECTED EXCEPT BY CONTINUITY.

That ideas can nowise be connected without continuity is sufficiently evident to one who reflects upon the matter. But still the opinion may be entertained that after continuity has once made the connection of ideas possible, then they may get to be connected in other modes than through continuity. Certainly, I cannot see how anyone can deny that the infinite diversity of the universe, which we call chance, may bring ideas into proximity which are not associated in one general idea. It may do this many times. But then the law of continuous spreading will produce a mental association; and this I suppose is an abridged statement of the way the universe has been evolved. But if I am asked whether a blind ἀνάγκη cannot bring ideas together, first I point out that it would not remain blind. There being a continuous connection between the ideas, they would infallibly become associated in a living, feeling, and perceiving general idea. Next, I cannot see what the mustness or necessity of this ἀνάγκη would consist in. In the absolute uniformity of the phenomenon, says the nominalist. Absolute is well put in; for if it merely happened so three times in succession, or three million times in succession, in the absence of any reason, the coincidence could only be attributed to chance. But absolute uniformity must extend over the whole infinite future; and it is idle to

talk of that except as an idea. No; I think we can only hold that wherever ideas come together they tend to weld into general ideas; and wherever they are generally connected, general ideas govern the connection; and these general ideas are living feelings spread out.

MENTAL LAW FOLLOWS THE FORMS OF LOGIC.

The three main classes of logical inference are Deduction, Induction, and Hypothesis. These correspond to three chief modes of action of the human soul. In deduction the mind is under the dominion of a habit or association by virtue of which a general idea suggests in each case a corresponding reaction. But a certain sensation is seen to involve that idea. Consequently, that sensation is followed by that reaction. That is the way the hind legs of a frog, separated from the rest of the body, reason, when you pinch them. It is the lowest form of psychical manifestation.

By induction, a habit becomes established. Certain sensations, all involving one general idea, are followed each by the same reaction; and an association becomes established, whereby that general idea gets to be followed uniformly by that reaction.

Habit is that specialisation of the law of mind whereby a general idea gains the power of exciting reactions. But in order that the general idea should attain all its functionality, it is necessary, also, that it should become suggestible by sensations. That is accomplished by a psychical process having the form of hypothetic inference. By hypothetic inference, I mean, as I have explained in other writings, an induction from qualities. For example, I know that the kind of man known and classed as a "mugwump" has certain characteristics. He has a high self-respect and places great value upon social distinction. He laments the great part that rowdyism and unrefined good-fellowship play in the dealings of American politicians with their constituency. He thinks that the reform which would follow from the abandonment of the system by which the distribution of offices is made to strengthen party organisations and a return to the original and essential conception of office-filling would be found an unmixed good. He holds that monetary considerations should usually be the decisive ones in questions of public policy.

He respects the principle of individualism and of *laisser-faire* as the greatest agency of civilisation. These views, among others, I know to be obtrusive marks of a "mugwump." Now, suppose I casually meet a man in a railway-train, and falling into conversation find that he holds opinions of this sort; I am naturally led to suppose that he is a "mugwump." That is hypothetic inference. That is to say, a number of readily verifiable marks of a mugwump being selected, I find this man has these, and infer that he has all the other characters which go to make a thinker of that stripe. Or let us suppose that I meet a man of a semi-clerical appearance and a sub-pharisaical sniff, who appears to look at things from the point of view of a rather wooden dualism. He cites several texts of scripture and always with particular attention to their logical implications; and he exhibits a sternness, almost amounting to vindictiveness, toward evil-doers, in general. I readily conclude that he is a minister of a certain denomination. Now the mind acts in a way similar to this, every time we acquire a power of coördinating reactions in a peculiar way, as in performing any act requiring skill. Thus, most persons have a difficulty in moving the two hands simultaneously and in opposite directions through two parallel circles nearly in the medial plane of the body. To learn to do this, it is necessary to attend, first, to the different actions in different parts of the motion, when suddenly a general conception of the action springs up and it becomes perfectly easy. We think the motion we are trying to do involves this action, and this, and this. Then, the general idea comes which unites all those actions, and thereupon the desire to perform the motion calls up the general idea. The same mental process is many times employed whenever we are learning to speak a language or are acquiring any sort of skill.

Thus, by induction, a number of sensations followed by one reaction become united under one general idea followed by the same reaction; while by the hypothetic process, a number of reactions called for by one occasion get united in a general idea which is called out by the same occasion. By deduction, the habit fulfils its function of calling out certain reactions on certain occasions.

UNCERTAINTY OF MENTAL ACTION.

The inductive and hypothetic forms of inference are essentially probable inferences, not necessary; while deduction may be either necessary or probable.

But no mental action seems to be necessary or invariable in its character. In whatever manner the mind has reacted under a given sensation, in that manner it is the more likely to react again; were this, however, an absolute necessity, habits would become wooden and ineradicable, and no room being left for the formation of new habits, intellectual life would come to a speedy close. Thus, the uncertainty of the mental law is no mere defect of it, but is on the contrary of its essence. The truth is, the mind is not subject to "law," in the same rigid sense that matter is. It only experiences gentle forces which merely render it more likely to act in a given way than it otherwise would be. There always remains a certain amount of arbitrary spontaneity in its action, without which it would be dead.

Some psychologists think to reconcile the uncertainty of reactions with the principle of necessary causation by means of the law of fatigue. Truly for a *law*, this law of fatigue is a little lawless. I think it is merely a case of the general principle that an idea in spreading loses its insistency. Put me tarragon into my salad, when I have not tasted it for years, and I exclaim "What nectar is this!" But add it to every dish I taste for week after week, and a habit of expectation has been created; and in thus spreading into habit, the sensation makes hardly any more impression upon me; or, if it be noticed, it is on a new side from which it appears as rather a bore. The doctrine that fatigue is one of the primordial phenomena of mind I am much disposed to doubt. It seems a somewhat little thing to be allowed as an exception to the great principle of mental uniformisation. For this reason, I prefer to explain it in the manner here indicated, as a special case of that great principle. To consider it as something distinct in its nature, certainly somewhat strengthens the necessitarian position; but even if it be distinct, the hypothesis that all the variety and apparent arbitrariness of mental action ought

to be explained away in favor of absolute determinism does not seem to me to recommend itself to a sober and sound judgment, which seeks the guidance of observed facts and not that of prepossessions.

RESTATEMENT OF THE LAW.

Let me now try to gather up all these odds and ends of commentary and restate the law of mind, in a unitary way.

First, then, we find that when we regard ideas from a nominalistic, individualistic, sensualistic way, the simplest facts of mind become utterly meaningless. That one idea should resemble another or influence another, or that one state of mind should so much as be thought of in another is, from that standpoint, sheer nonsense.

Second, by this and other means we are driven to perceive, what is quite evident of itself, that instantaneous feelings flow together into a continuum of feeling, which has in a modified degree the peculiar vivacity of feeling and has gained generality. And in reference to such general ideas, or continua of feeling, the difficulties about resemblance and suggestion and reference to the external, cease to have any force.

Third, these general ideas are not mere words, nor do they consist in this, that certain concrete facts will every time happen under certain descriptions of conditions; but they are just as much, or rather far more, living realities than the feelings themselves out of which they are concreted. And to say that mental phenomena are governed by law does not mean merely that they are describable by a general formula; but that there is a living idea, a conscious continuum of feeling, which pervades them, and to which they are docile.

Fourth, this supreme law, which is the celestial and living harmony, does not so much as demand that the special ideas shall surrender their peculiar arbitrariness and caprice entirely; for that would be self-destructive. It only requires that they shall influence and be influenced by one another.

Fifth, in what measure this unification acts, seems to be regulated only by special rules; or, at least, we cannot in our present

knowledge say how far it goes. But it may be said that, judging by appearances, the amount of arbitrariness in the phenomena of human minds is neither altogether trifling nor very prominent.

PERSONALITY.

Having thus endeavored to state the law of mind, in general, I descend to the consideration of a particular phenomenon which is remarkably prominent in our own consciousnesses, that of personality. A strong light is thrown upon this subject by recent observations of double and multiple personality. The theory which at one time seemed plausible that two persons in one body corresponded to the two halves of the brain will, I take it, now be universally acknowledged to be insufficient. But that which these cases make quite manifest is that personality is some kind of coördination or connection of ideas. Not much to say, this, perhaps. Yet when we consider that, according to the principle which we are tracing out, a connection between ideas is itself a general idea, and that a general idea is a living feeling, it is plain that we have at least taken an appreciable step toward the understanding of personality. This personality, like any general idea, is not a thing to be apprehended in an instant. It has to be lived in time; nor can any finite time embrace it in all its fulness. Yet in each infinitesimal interval it is present and living, though specially colored by the immediate feelings of that moment. Personality, so far as it is apprehended in a moment, is immediate self-consciousness.

But the word coördination implies somewhat more than this; it implies a teleological harmony in ideas, and in the case of personality this teleology is more than a mere purposive pursuit of a predeterminate end; it is a developmental teleology. This is personal character. A general idea, living and conscious now, it is already determinative of acts in the future to an extent to which it is not now conscious.

This reference to the future is an essential element of personality. Were the ends of a person already explicit, there would be no room for development, for growth, for life; and consequently there would be no personality. The mere carrying out of prede-

termined purposes is mechanical. This remark has an application to the philosophy of religion. It is that a genuine evolutionary philosophy, that is, one that makes the principle of growth a primordial element of the universe, is so far from being antagonistic to the idea of a personal creator, that it is really inseparable from that idea ; while a necessitarian religion is in an altogether false position and is destined to become disintegrated. But a pseudo-evolutionism which enthrones mechanical law above the principle of growth, is at once scientifically unsatisfactory, as giving no possible hint of how the universe has come about, and hostile to all hopes of personal relations to God.

COMMUNICATION.

Consistently with the doctrine laid down in the beginning of this paper, I am bound to maintain that an idea can only be affected by an idea in continuous connection with it. By anything but an idea, it cannot be affected at all. This obliges me to say, as I do say, on other grounds, that what we call matter is not completely dead, but is merely mind hide-bound with habits. It still retains the element of diversification ; and in that diversification there is life. When an idea is conveyed from one mind to another, it is by forms of combination of the diverse elements of nature, say by some curious symmetry, or by some union of a tender color with a refined odor. To such forms the law of mechanical energy has no application. If they are eternal, it is in the spirit they embody; and their origin cannot be accounted for by any mechanical necessity. They are embodied ideas ; and so only can they convey ideas. Precisely how primary sensations, as colors and tones, are excited, we cannot tell, in the present state of psychology. But in our ignorance, I think that we are at liberty to suppose that they arise in essentially the same manner as the other feelings, called secondary. As far as sight and hearing are in question, we know that they are only excited by vibrations of inconceivable complexity ; and the chemical senses are probably not more simple. Even the least psychical of peripheral sensations, that of pressure, has in its excitation conditions which, though apparently simple, are seen to be

complicated enough when we consider the molecules and their attractions. The principle with which I set out requires me to maintain that these feelings are communicated to the nerves by continuity, so that there must be something like them in the excitants themselves. If this seems extravagant, it is to be remembered that it is the sole possible way of reaching any explanation of sensation, which otherwise must be pronounced a general fact absolutely inexplicable and ultimate. Now absolute inexplicability is a hypothesis which sound logic refuses under any circumstances to justify.

I may be asked whether my theory would be favorable or otherwise to telepathy. I have no decided answer to give to this. At first sight, it seems unfavorable. Yet there may be other modes of continuous connection between minds other than those of time and space.

The recognition by one person of another's personality takes place by means to some extent identical with the means by which he is conscious of his own personality. The idea of the second personality, which is as much as to say that second personality itself, enters within the field of direct consciousness of the first person, and is as immediately perceived as his ego, though less strongly. At the same time, the opposition between the two persons is perceived, so that the externality of the second is recognised.

The psychological phenomena of intercommunication between two minds have been unfortunately little studied. So that it is impossible to say, for certain, whether they are favorable to this theory or not. But the very extraordinary insight which some persons are able to gain of others from indications so slight that it is difficult to ascertain what they are, is certainly rendered more comprehensible by the view here taken.

A difficulty which confronts the synechistic philosophy is this. In considering personality, that philosophy is forced to accept the doctrine of a personal God; but in considering communication, it cannot but admit that if there is a personal God, we must have a direct perception of that person and indeed be in personal communication with him. Now, if that be the case, the question arises how it is possible that the existence of this being should ever have been

doubted by anybody. The only answer that I can at present make is that facts that stand before our face and eyes and stare us in the face are far from being, in all cases, the ones most easily discerned. That has been remarked from time immemorial.

CONCLUSION.

I have thus developed as well as I could in a little space the *synechistic* philosophy, as applied to mind. I think that I have succeeded in making it clear that this doctrine gives room for explanations of many facts which without it are absolutely and hopelessly inexplicable; and further that it carries along with it the following doctrines: 1st, a logical realism of the most pronounced type; 2nd, objective idealism; 3rd, tychism, with its consequent thoroughgoing evolutionism. We also notice that the doctrine presents no hindrances to spiritual influences, such as some philosophies are felt to do.

C. S. Peirce.

MR. CHARLES S. PEIRCE'S ONSLAUGHT ON THE DOCTRINE OF NECESSITY.

THE problem of necessity lurks at the bottom of all problems, and according as we accept or reject the idea of necessity we shall be led to two entirely different world-conceptions.

The conception of indeterminism generally offers itself first to the doubting mind; and it is apparently a pleasant idea. It promises freedom, it leaves room for the imagination, it makes the world and its possibilities wide, much wider than it could be on the plan of determinism. Determinism is at first sight an oppressive notion and we naturally shrink from it. It seems to destroy the freedom of the will and all moral responsibility. From infinite possibilities it narrows the world down to one single actuality; and thus it seems to destroy all the charms of life.

The former view may be represented as conceiving the all-power of the whole in which and through which we live as a well meaning and yielding ruler or a kind-hearted parent who if strongly plied with prayer, will for a trifle in order to please an importune favorite change his decisions. The dispensations of his government will be full of exceptions, of private cabinet decrees, of counter orders and irregularities. The latter view, however, would represent the entirety of the All as an inexorable and uncompromising sovereign, or as a severe educator, a stern father who unfalteringly clings to his principles. He leaves full independence to his children, he does not prevent their mistakes, yet rigidly lets them bear the consequences of their actions. He never answers prayers except that the prayer itself has its educating effects upon him who prays; but he

never alters objective facts for the sake of him who requests his interference, and he never makes exceptions either in favor or disfavor of anybody. In brief; the God of him who accepts the former view, will be Chance, while the God of him who accepts the latter view will be Law.

The choice between the two views seems to remind us of the choice left to the heroes of our fairy tales. He who chooses that which appears pleasant will be led into inextricable confusion, he who chooses that which appears rigid and oppressive will be led on a path where in spite of many difficulties he will be able to make firm and certain steps and will arrive at clearness as well as moral freedom. It is not the golden casket that contains Portia's picture.

Science constantly operates on the basis of the maxim that there is no chance, that everything that happens, happens as it does with necessity. The question is, Is this maxim a mere assumption, a non-verifiable working hypothesis; or is there any reliable evidence in its favor? Is it true, and if it is, how can it be proved?

I.

DAVID HUME REDIVIVUS.

Mr. Charles S. Peirce's article entitled "The Doctrine of Necessity Examined," which appeared in the last number of *The Monist*, must have been a surprise to many thinking readers. It must have affected them in a somewhat similar manner as Hume's "Treatise of Human Nature" affected Kant. It roused him from his dogmatic slumber: He abandoned dogmatism but nevertheless did not accept Hume's skepticism; he remained positive; yet he propounded a better positive view than was the old dogmatism; he established in philosophy the method of critique.

The parallelism between David Hume, who doubted the validity of our conception of causation, and Mr. Charles S. Peirce who denies the universality of the doctrine of necessity, is very marked in more than one respect. It is, in spite of many differences, a case of close analogy, and the answer which we shall have to give to either, will in many respects be suited to both. Both shake the

ultimate ground of scientific research at its very root. Both call in question the most fundamental concept upon which all our methods of investigation and philosophy rest. Both challenge the reliability of an idea of which few would hesitate to say that it is all but universally accepted. In fact the ideas "causation" and "necessity" are more than kin. If analysed, many of their elements will be found to be actually identical. Thus the one cannot be either established or doubted without establishing or doubting the other. Accordingly Mr. Peirce, in some respect, repeats David Hume's onslaught upon the current conception of the basis of human knowledge with the more formidable weapons which a century of close thought and scientific investigation have furnished him.

If Kant's answer to Hume had been satisfactory, Mr. Peirce probably would not have renewed the attack or he would have had to modify it considerably. Kant, however, whom we both, Mr. Peirce as much as I myself, admire as a master of philosophic thought, did not solve the question satisfactorily. Yet Kant pointed out the way of solving it, which was the middle way between dogmatism and scepticism, called by him and his followers "Criticism," and it is this way on which we trust is safest travelling.

Mr. Peirce is right that the doctrine of necessity cannot be "postulated," for "to postulate a proposition is no more than to hope it will be true." The doctrine of necessity is, indeed, usually treated as a postulate, and Mr. Peirce's attack appears formidable because he shows the weakness of the arguments which are commonly brought forward in its favor and which we grant to be insufficient.

Mr. Peirce says (*The Monist*, II, 3, p. 330):

"In view of all these considerations, I do not believe that anybody, not in a state of casehardened ignorance respecting the logic of science, can maintain that the precise and universal conformity of facts to law is clearly proved, or even rendered particularly probable, by any observations hitherto made. In this way, the determined advocate of exact regularity will soon find himself driven to *a priori* reasons to support his thesis. These received such a sockdologer from Stuart Mill in his Examination of Hamilton, that holding to them now seems to me to denote a high degree of imperviousness to reason; so that I shall pass them by with little notice."

Mr. Peirce is right when saying that necessitarianism must be founded on something other than observation. Observation is *a posteriori;* it has reference only to single facts, to particulars; yet the doctrine of necessity, if there is anything in it at all, is of universal application. The doctrine of necessity, let us not be afraid to pronounce it clearly, is of an *a priori* nature. The scientist assumes *a priori*, i. e. even before he makes his observations or experiments, as a general law applicable to every process which takes place, that, whatever happens, happens of necessity in consequence of a cause and in conformity to law, so that the same cause under the same circumstances will produce the same effects. If all the *a priori* reasons, as Mr. Peirce maintains, received a sockdologer from Stuart Mill, then indeed we shall have to abandon the idea of necessity as the superstition of a past and erroneous philosophy and we shall have to start the world of science over again.

Mr. Peirce denies the strict regularity of natural law and introduces an element of chance. He says (ibid. p. 336):

"To undertake to account for anything by saying boldly that it is due to chance would, indeed, be futile. But this I do not do. *I make use of chance chiefly to make room for a principle of generalisation, or tendency to form habits, which I hold has produced all regularities.** The mechanical philosopher leaves the whole specification of the world utterly unaccounted for, which is pretty nearly as bad as to boldly attribute it to chance. I attribute it altogether to chance, it is true, but to chance in the form of a spontaneity which is to some degree regular."

Mr. Peirce is the pathfinder of a new and as yet untried road. He strikes out boldly into the tumultuous ocean of chance, hoping to find in his journey the connection between the East and the West, between contrasts that seem to him otherwise unconnectible. The confidence of the bold discoverer is set forth in the warnings he gives to all seafaring people. He attempts to frighten the ill-informed minds who might innocently venture out in other directions; and he will thus naturally prevent many from falling either into the Charybdis of doubting the propriety of applying the logic of probabilities to the problem of necessity and causation in general, or, worse still,

* Italics are ours.

into the Scylla of the *a priori*. The former, he tells us denotes "a state of case-hardened ignorance respecting the logic of science," the latter "a high degree of imperviousness to reason."

Mr. Peirce is well known as one of the keenest logicians now living. Considering this fact I am slow to take up arms against him in defending a case which he so strongly brands beforehand. I must from the beginning plead guilty to a belief in necessity, and having critically revised my view once more I cannot help upholding it. I am fully conscious of the fact that hundreds, thousands, and millions of single experiences (which in Kantian terminology are called *a posteriori* arguments) cannot establish a solid belief in necessity, nor can any imaginable number of sequences prove the rigidity of causation, and I confess freely that I support my thesis with *a priori* reasons. Yet at the same time attention must be called to the fact that neither Mr. Hamilton nor Mr. Mill had any adequate conception of the *a priori*, and Mr. Mill's sockdologer does not disturb in the least the assurance of my view; for the *a priori* can, in my opinion, be based upon the firm ground of experience.

All the many sense-experiences at our command, if considered singly, cannot constitute knowledge. In order to weave the woof of the *a posteriori* into coherent cloth we want the warp of the *a priori*, and I do not see how we can do without it. But the *a priori* is not that mystical hocus-pocus of absolute truth with its impertinent assumptions such as it is presented by pseudo-Kantians and justly denounced by Mill; it is not as Mr. Peirce brands it an "I cannot help believing," it is not a "natural belief," nor is it as others conceive it an innate idea. It is, briefly described, simply and solely formal knowledge, such as $2 \times 2 = 4$, to which we attribute universality and necessity and with the assistance of which we are enabled to predict and predetermine certain results beforehand (i. e. *a priori*). We might invent a new name for the *a priori*, the latter having become odious through the denunciations of its enemies and worse still, having been distorted beyond recognition through the misuse to which it was put by its defenders and suppositional friends. Yet that would be another question, and the idea of the *a priori*, i. e. of formal knowledge involving universality and necessity would remain the same.

The universality and necessity of formal knowledge are as a rule taken for granted by scientists. But philosophy can take nothing for granted, and the problem rises: How is the belief in the universality and necessity of formal knowledge to be justified? Mr. Peirce's onslaught on the doctrine of necessity is a challenge to answer this question.

II.

CAUSATION NOT MERE SEQUENCE.

Mr. John Venn published some twenty-five or six years ago an excellent treatise called "The Logic of Chance." This work opened the eyes of many to the great importance of the calculus of probabilities as a method of science which was of much wider application than had before been suspected. This admirable work we may boldly say marks a new epoch in the study of logic, it opened new vistas, and many expectations created by it have since been realised. Yet it is to be regretted that the author adopts Hume's erroneous conception of causality and thus implicitly paves the way which Mr. Peirce has actually followed and which leads to a denial of the doctrine of necessity. Concerning "the doctrine of universal causation" Mr. Venn says, in Chapter XIV:

"We will employ the word simply in the sense which is becoming almost universally adopted by scientific men, viz. that of invariable unconditional sequence.

"It is in this sense that the word *cause* is used by Mr. Mill. . . .

"This meaning of the term is rapidly becoming the popular, or rather, the popular scientific one."

This idea of "sequence" however was exactly Hume's mistake, adopted by Mr. Mill and through Mr. Mill popularised among English thinkers. If the nature of cause and effect were really constituted by invariable sequence, then the night might be called the effect of the day because night is invariably consequent upon day.

Hume, taking the ground that cause and effect constitute a sequence, attempted a synthesis of both; he searched for a proof of their identity and failed. And it was natural that he failed, for cause and effect are so radically different that we cannot bring them into the formula of an equation as "cause = effect." There is no cause that is equal to its effect.

Hume should have considered causation as one single process, and instead of attempting a synthesis, he should have made an analysis. The analysis would have shown that cause and effect are two abstract and correlative terms of one whole and inseparable event. Cause is not identical with effect, but the whole event is identical with itself.

If my finger touches a key of the piano, a chord is struck; the chord swings and produces certain air-vibrations. In this process from the beginning to the end all the energy employed and the mass of the material particles remain in amount the same, yet there is a change of form taking place. Causation is not mere sequence, but a sequence of quite a special kind. It is a sequence of two states which belong together as an initial and a final aspect of one and the same event.

So long as we know of two events simply that they follow one another, although the sequence may in every case be invariable and unexceptional, we are not justified in calling them cause and effect. No amount of experience is sufficient to constitute causation by a mere synthesis of sequences, and to have appreciated this truth is the immortal merit of the great Scotchman who boldly took the consequence of the argument and acquiesced in scepticism.

The problem, however, is not so desperate as Hume thought. If Hume could have considered his argument in the light which the law of the conservation of matter and energy sheds upon it, he would most likely have abandoned his scepticism; for causality is perfectly intelligible if conceived not as a synthesis of two radically different events, but as a process of transformation, of which the prior state is called cause and the final one effect.

That two radically different events, which are not thought of as transformation, invariably follow each other without our being able to discover any connection between them, will naturally appear as a mystery; but that two forms are radically different things, although they may be forms of the same amount of matter and energy, is no mystery. The effect is, or may be, something entirely new. The configuration of things as it appears in the effect, did not exist

before. But for that reason, it is no creation out of nothing, it is not an incomprehensible event, it is no miracle.

It is a very wonderful thing that two congruent regular tetrahedrons, when put together, will form a hexahedron, but the laws of form do perfectly and satisfactorily explain it. Supposing we had no idea of the laws of form or only an incoherent and fragmentary knowledge of them, should we not look upon the result of this combination as a strange and incomprehensible mystery. Two heaps of flour one poured upon the other will give one heap of the same kind and shape but of a larger size. However, the combination of the two four-sided bodies does not produce another four-sided body doubly as large as any of the two four-sided bodies. Nor does it produce an eight-sided body. It produces a six-sided body, which is something quite new. The result is not contained in the conditions singly, for no one can say that six-sidedness is a quality implicitly contained in four-sided bodies.

The process of combining hydrogen with oxygen into water (H_2 O) is an immensely more complex case, and the qualities resulting from a difference of density as well as configuration are entirely unknown to us. There is nevertheless no reason whatever to consider the process as different in principle; it is a case of transformation in which the amount of matter and energy remains the same.

Whatever the value of the logic of chance may be for scientific reasoning in establishing gradations of certainty and formulating the reliability of a certain belief, we deny most positively its applicability to the principle of causation in general. If we ask what the chance is of a combination of two congruent tetrahedrons becoming a hexahedron, we must answer that the probability is exactly 1, which means certainty, and certainty is but another name for necessity.

Mr. Peirce does not object to necessity in certain cases, he objects to necessity being a universal feature of the world. He objects to the rigidity of causation in so far only as to allow a trifle of chance to enter into nature.

One or two cases or even a hundred, and a thousand, nay millions of millions of cases in which causation is explicable as transfor-

mation is no proof that this must always be so. Mr. Peirce may grant and most likely he does grant that causation in a definite set of experiences is transformation, yet what guarantee do we have for saying that it is the only kind of causation. Might there not be room in this world for another causation which for lack of a full comprehension of its nature, we may call the causation of chance?

We answer that form is a quality of this world, not of some samples of it, but throughout, so far as we know of existence even in the most superficial way, and thus we know beforehand or *a priori* that the laws of form hold good so far as our telescopes sweep through space. We are ignorant as to the qualities dependent upon special forms of matter or energy, and we can acquire any knowledge thereof only through experience; but that is no reason to doubt the validity of causation in general, or to surmise the probability of there being somewhere a different arrangement of nature.

Thus we come to the conclusion that the calculus of probabilities is not applicable to the order of the world as to whether it may or may not be universal. And in corroboration of this our position we quote the following passage from a high authority in the science of logic, who is no less than Mr. Charles S. Peirce himself. "Illustrations of the Logic of Science," (*Popular Science Monthly*, 1877, p. 714):

"The relative probability of this or that arrangement of Nature is something which we should have a right to talk about if universes were as plenty as blackberries, if we could put a quantity of them in a bag, shake them well up, draw out a sample, and examine them to see what proportion of them had one arrangement and what proportion another. But, even in that case, a higher universe would contain us, in regard to whose arrangements the conception of probability could have no applicability."

Mr. Peirce is still more emphatic in another passage which reads (ib. 1878, p. 205):

"If any one has ever maintained that the universe is a pure throw of the dice, the theologians have abundantly refuted him. 'How often,' says Archbishop Tillotson, 'might a man, after he had jumbled a set of letters in a bag, fling them out upon the ground before they would fall into an exact poem, yea, or so much as make a good discourse in prose! And may not a little book be as easily made by chance as this great volume of the world?' The chance world here shown to be so

different from that in which we live would be one in which there were no laws, the characters of different things being entirely independent; so that, should a sample of any kind of objects ever show a prevalent character, it could only be by accident, and no general proposition could ever be established. Whatever further conclusions we may come to in regard to the order of the universe, thus much may be regarded as solidly established, that the world is not a mere chance-medley."

Here follows a close reasoning of several pages which ends (on p. 207) with a paragraph beginning with the words:

"This shows that a contradiction is involved in the very idea of a chance world."

And a long paragraph on p. 208 winds up with these sentences:

"The actual world is almost a chance-medley to the mind of a polyp. The interest which the uniformities of Nature have for an animal measures his place in the scale of intelligence."

This is exactly the position which I defend. If universes were as plenty as blackberries we might talk about the order of other universes. They might be four- or five- or *n*-dimensional. Yet even in all these cases they would not be void of form. The four-dimensional universe would have another arrangement, but its laws would be none the less orderly, none the less regular, and a higher universe would contain them all. Supposing there were four- or five-dimensional space somewhere, we could state with absolute precision all the formal laws by which bodies of so many dimensions were governed.*

The order of form and the rigidity of formal laws is as universal and omnipresent as God. They encompass our path and our lying down, they have beset our behind and before. If we ascend up into heaven they are there, if we make our beds in hell, behold they are there. If we take the wings of the morning and dwell in the uttermost parts of the sea, even there they shall lead us and hold us.

III.

MR. PEIRCE'S LOGIC OF SCIENCE.

In spite of the fundamental difference that obtains between Mr. Peirce's and our own world-conception, we must state that there are

* See *Fundamental Problems*, p. 55.

many most important points of agreement. Mr. Peirce says in his article "Illustrations of the Logic of Science," (ibid. p. 3 and 7):

"The object of reasoning is to find out, from the consideration of what we already know, something else which we do not know. * * *

"The settlement of opinion is the sole object of inquiry."

There are according to Peirce several methods of settling opinion, which swayed humanity in an historic succession: (1) The method of tenacity. Doubt being an uneasy and dissatisfied state, we cling tenaciously not merely to believing, but to believing just what we do believe. (2) The method of authority, which is that of the Roman Church and of all great political and religious institutions of the past. (3) The *a priori* method, by which Mr. Peirce understands the fixing of belief agreeably to reason, i. e. to the subjective conviction of the individual thinker. All these methods have their merits, says Mr. Peirce (ibid. p. 13):

"The *a priori* method is distinguished for its comfortable conclusions. It is the nature of the process to adopt whatever belief we are inclined to, and there are certain flatteries to the vanity of man which we all believe by nature, until we are awakened from our pleasing dream by some rough facts. The method of authority will always govern the mass of mankind. . . . But most of all I admire the method of tenacity for its strength, simplicity, and directness."

It is apparent that the merit of the *a priori* method so called is really a vice. The *a priori* method so called is the basis of agnosticism. If according to my reason this, and according to your reason that, may be the truth, where does truth remain? If truth is purely subjective, truth becomes impossible. The method of settling belief agreeably to our individual tempers is the death of objective truth, of science and philosophy.

Mr. Peirce fully recognises the practical importance of thought. He says:

"The production of belief is the sole function of thought" (ibid. p. 289).

"Our beliefs guide our desires and shape our actions" (ibid. p. 5).

"What is belief? First, it is something that we are aware of; second, it appeases the irritation of doubt; and third, it involves the establishment in our nature of a rule of action, or, say for short, a *habit*" (ibid. p. 291).

"Thus, we come down to what is tangible and practical, as the root of every real distinction of thought, no matter how subtile it may be; and there is no dis-

tinction of meaning so fine as to consist in anything but a possible difference of practice" (ibid. p. 293).

Mr. Peirce is very far from considering philosophy as a mere matter of speculation or theory without practical importance. He says:

"What sort of a conception we ought to have of the universe, how to think of the *ensemble* of things, is a fundamental problem in the theory of reasoning."

The *a priori* method, so called by Mr. Peirce, translated into practical life is not only the death of truth but also of morality. The objective criterion of truth is gone, and with it goes the objective standard of right and wrong. If that is true which seems so to my individual reason, then that is right which pleases me best. What is right to me might be wrong to you. Thus this method leads either to moral indifference, or to basing ethics upon the greatest amount of pleasure attainable, (Hedonism, as represented by Mr. H. Spencer, Prof. Harald Höffding, Professor Gizycki, and others,) or to relying upon the individual conscience as an absolute and ultimate authority.*

The method of settling opinion agreeably to individual reason is at present the most fashionable and widely spread conception, and it shows its influence in the almost universal acceptation of agnosticism to-day. Is that the final decision with which we have to rest satisfied? If it were, we would better return to the method of authority or tenacity. No, it is not the sum of all wisdom. The *a priori* method so called represents a period of transition, which, if persistently pursued, will lead to the bankruptcy of thought, the desperate appearance of which is well disguised in the big sounding and modesty-parading term agnosticism. And here we return to the exposition of Mr. Peirce's views. Mr. Peirce does not accept the *a priori* method, he believes in "the logic of science." Mr. Peirce says:

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*This is the position of the Societies for Ethical Culture which are not confessedly but practically agnostics. Professor Adler's position is characterised in *The Monist*, Vol I, No. 4, p. 567, 599, and *The Open Court* Nos. 225 and 234. Mr. Salter bases ethics upon "the immovable rock of conscience." (See his *Ethical Religion*, p. 295.)

"To satisfy our doubts, therefore, it is necessary that a method should be found by which our beliefs may be caused by nothing human, but by some external permanency—by something upon which our thinking has no effect. . . . The method must be such that the ultimate conclusion of every man shall be the same. Such is the method of science" (ibid. p. 11.)

"That whose characters are independent of how you or I think is an external reality" (ibid. p. 298).

"All the followers of science are fully persuaded that the processes of investigation, if only pushed far enough, will give one certain solution to every question to which they can be applied. . . . They may at first obtain different results, but, as each perfects his method and his processes, the results will move steadily together toward a destined centre. . . . The opinion which is fated to be ultimately agreed to by all who investigate, is what we mean by the truth, and the object represented in this opinion is the real" (ibid. pp. 299–300).

The word "fated" must be understood as Mr. Peirce understands it. He adds in a footnote:

"Fate means merely that which is sure to come true, and cannot be avoided.'

IV.

NECESSITY IN THOUGHT PRESUPPOSES NECESSITY IN FACTS.

I have thus outlined Mr. Peirce's views, not only because his line of reasoning* is admirable and deserves to be universally known and recognised, but also because it seems to me to have some bearing upon the question at issue.

If the ultimate conclusion of every man concerning reality shall be the same, there must be some truth in the idea of necessity. If there is an opinion "fated to be ultimately agreed to," we are confronted in our representation of reality with something that is inevitable. Shall there be necessity in thought but not in that of which all our ideas are but images and symbols? We can conceive of the necessity in the ideal realm of thought only as a reflection of that necessity which pervades the original and prototype of our thought, which lives in reality.

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*Ernst Schroeder in his great work *Vorlesungen über die Algebra der Logik* adopts in the main the results of Peirce. A sketch of Mr. Peirce's line of thought, (his *Gedankengang*, as Schroeder calls it,) is found in the *Einleitung*, pp. 107–118.

V.

MR. PEIRCE'S EVOLUTIONISM.

I have tried to find an explanation of Mr. Peirce's position which appears to me self-contradictory and I believe I have found the key that will explain it.

I read somewhere a stray remark of Mr. Peirce's in which he demanded that evolutionism should be thorough-going. The conception of evolution in vogue at present, he said, stops short at a certain point, and substitutes for an explanation the unknowable. Mr. Peirce says:

"Does not space call for some explanation? Is not that a half-way philosophy which in these our days does not explain, or at least hold out some promise of explaining, why space is continuous, why it has such a wonderful uniformity in all its parts, why there are neither more nor less than three dimensions everywhere, why every closed curve can, by a continuous change of position, size, and form, be brought into coincidence with every other, and why the three angles of a triangle make exactly one hundred and eighty degrees, or at least so very closely so that we cannot tell whether they make more or less?"

Mr. Peirce does not intend to halt before these problems, but to explain them and carries the principle of evolution to its ultimate conclusions, so as to explain from it not only the forms of living organisms but also the laws of nature including the laws of space. Mr. Peirce declares in his article "The Architecture of Theories" (*The Monist*, Vol. I, No. 2, p. 165):

"Uniformities are precisely the sort of facts that need to be accounted for. . . . Law is *par excellence* the thing that wants a reason."

And what he means by it is further elucidated in his article "The Doctrine of Necessity Examined" (*The Monist*, Vol. II, No. 3, p. 334):

"That single events should be hard and unintelligible, logic will permit without difficulty: we do not expect to make the shock of a personally experienced earthquake appear natural and reasonable by any amount of cogitation. But logic does expect things *general* to be understandable. To say that there is a universal law, and that it is a hard, ultimate, unintelligible fact, the why and wherefore of which can never be inquired into, at this a sound logic will revolt; and will pass over at once to a method of philosophising which does not thus barricade the road of discovery."

It is perfectly true that "law is *par excellence* the thing that wants a reason," and any explanation that explains it by the assumption of an unknowable is unphilosophical. I agree with Mr. Peirce that we must not halt here; but I have no confidence in his method of explanation. Mr. Peirce's original idea, then, and I should add, his main mistake, is that he proposes to explain the origin of natural law by evolution.

In his legitimate anxiety to explain law, Mr. Peirce declares chance to be exempt therefrom. He says:

"That a pitched coin should sometimes turn up heads and sometimes tails calls for no particular explanation." (*The Monist*, Vol. I, No. 2, p. 165.)

But chance in our opinion needs exactly as much explanation as anything else. Mr. Peirce very improperly identifies "that which cannot be accounted for" with "that which need not be accounted for." Absolute chance, if it existed, would *not* so much *not* call for a particular explanation as actually be unexplainable, and being incapable of explanation, it would have to be considered as an unintelligible fact, as inscrutable, incomprehensible, and mystical. On the assumption that chance need not be accounted for, Mr. Peirce builds the architecture of his theory. He says:

"Chance is first, law is second, the tendency of habits is third."

The application of this general statement is set forth in the following passage:

"In psychology Feeling is First, Sense of reaction Second, General conception Third, or mediation. In biology, the idea of arbitrary sporting is first, heredity is second, the process whereby the accidental characters become fixed is third."

How little after all we can escape the determinism of law as being a feature of the world will be seen from the fact, that the explanation for the evolution of law is presented by Mr. Peirce as being itself a law, i. e. a formula describing a regularity supposed to obtain in facts. Does not Mr. Peirce's formula, supposing it to be true, deserve the same reproach which he casts upon natural law in general, viz., that it is "a hard, ultimate, unintelligible fact, the why and wherefore of which can never be inquired into"?

VI.

WORLD-CONSTRUCTIONS.

There are two methods of philosophising, one starts with ideas which are supposed not to need any explanation, the other starts from facts and uses facts as data. The former is the method of the constructionist or ontologist, the latter that of the positivist. The constructionist attempts to beget a world-theory in the same way that God was supposed to have created the world; he attempts to bring it into being either out of a real nothing or out of something like nothing. He constructs a world-theory out of the self-evident, out of the absolute, out of the indubitable, or out of that the contrary of which is inconceivable. The positivist, however, employs facts as the given material, which he works out into a consistent and systematic whole. The former view is synthetic and constructive, the latter is analytic and descriptive. The former view is the method of Hegel, Oken, and also of Mr. Spencer, the latter is the method of all scientists and the ideal of the positive philosophy.

Mr. Peirce although very positivistic in his logic of science, must in philosophy still be counted among the constructionists.

Chance is to Mr. Peirce as much absolute as was to Hegel the idea of "abstract being," which as such, Hegel said, is equivalent to "non-being." Non-being need not be accounted for. So Hegel starts with this idea, and finding that "becoming" is the oscillation between being and non-being launches his abstract thought upon the terra firma of reality.

In the same way and with similar ingenious ingenuity Oken starts the world with zero. Zero or non-being need not be accounted for. Its existence calls for no particular reasons. What is zero? We can conceive it as "$0 = 1 - 1$." Thus we have "$+ 1$" and "$- 1$," two units. The whole world, according to Oken, is only a disintegration of Nothing, an equation of enormous complexity but always equal to zero. And that explains the world!

Mr. Spencer adopts "the principle of setting out with propositions of which the negations are unconceivable," without being aware that any inveterate belief or prejudice can be defended from

that standpoint. The principle is purely subjective. It does not admit of any objective verification and limits knowledge to individual conception. If Mr. Spencer's principle were admissible, we could not refute the adversaries of the Copernican system, when they declare that the rotation of the earth up on which we stand is inconceivable. The maxim that that proposition is most certain the negation of which is inconceivable might after all, and it actually did very often, come into conflict with facts. Many propositions are now confidently accepted which were formerly declared to be positively inconceivable.

Mr. Peirce, I say, starts the world with an abstract idea of a something of which he assumes we need not give any account, as did the great ontologists of former times. He constructs, agreeably to his reason, a theory of the way in which the world might have originated, and thus he falls into the mistake criticised by himself as the *a priori* method. Yet the weakest point of Mr. Peirce's system is that his "absolute chance" begets order; irregularity becomes law by practice, as if by a sufficiently prolonged shaking the dice would by and by acquire the habit of turning up the same faces each time.

The present world-conception of the scientist regards natural laws as eternal. The order that prevails in these laws constitutes the principle of evolution and changes the chaos of a nebula into a well-arranged planetary system. Thus the original chaos is properly speaking no chaos. It is in all its parts regulated by law and only appears chaotic in comparison with more advanced stages of evolution.

Desirous to account for the regularities of nature Mr. Peirce proposes the idea that nature in the beginning was a real, true chaos, without order, without laws, the single actions of reality taking place irregularly and in a sportive manner. Absolute chance prevailed. Everything was undetermined, exactly as much so as a man is undetermined in his action before his belief is settled. Yet a man, by and by, forms a belief and acts accordingly, not once or twice, but often, until a habit is formed. Thus Mr. Peirce assumes, Nature's actions are first undetermined, they may be of this kind or of another kind. The same particle of reality may under the same con-

ditions act in different ways, yet it acts somehow; it acts again, and repeats a certain kind of action more frequently than others, thus forming habits. Laws according to Mr. Peirce are the habits acquired by nature.

The proposition of Mr. Peirce's logic of science points out another method of constructing a world-conception. The recognition of reality in the sense as he conceives it, admonishes us that our world-conception should be a picturing, a mirroring, an imitation of the objective world of facts. It should not be the architecture of a theory, but first an analysis and then a reconstruction of experience; it should be a description of facts, methodically arranged.

VII.

FACTS AND LAWS.

That which we call natural law is not the description of a certain special and concrete form of existence which is now or then and here or there, but of some general quality of facts which is everywhere and always. The former, i. e. every special and concrete form of existence, can be explained by evolution, the latter, i. e. natural law, cannot. The former has to be accounted for by the law of causation, the latter by the principle of sufficient reason. And it is this distinction between cause and reason which Mr. Peirce does not seem to have regarded.

Every special form of existence must, at least theoretically, be traceable as the effect of some cause and every law of nature must be explainable by showing its connection with other natural laws. The only thing in the world of which we cannot and need not give account is the existence of facts itself, or being in general, which is the stubborn presence of reality in us ourselves and also outside of us, objected to our own being as an independent power to which we have to adapt our conduct. We need not prove its existence, for it exists. If anything is ultimate, facts are ultimate; and cognition is nothing but the reconstruction of facts for the purpose of orientation among them, it is a methodical description of reality in the symbols of the feelings that exist in sentient beings.

A scientist having observed a special process of nature, describes it, if possible, in such a way that it is recognised as a trans-

formation. A description of this kind is called an explanation. It renders the process intelligible to us ; it is complete and exhaustive. In order to make such a description available for comprehending other cases of the same or similar kind, we have to introduce another principle, which is that of economy. We must single out those features which are common to a certain class and remove all diversity and specificalness. All specificalness and diversity are transient features due to special conditions ; they disappear with these special conditions. Thus the notion of natural law involves as an essential characteristic and fundamental quality the absence of the incidental and the temporal.

Natural laws describe the facts of nature *sub specie aeternitatis.* They cease to be natural laws in the proper sense of the word as soon as they are conceived, like legal laws, as products of evolutions, which have appeared in time and may disappear again. Eternity is the characteristic feature of a natural law, it is its backbone, the essence of its being, its *conditio sine qua non.*

Thus in considering a natural phenomenon we are led to distinguish between its cause and its reason : Its cause is something special, it is an individual event, happening in time, and accordingly being transient ; it is an occurrence of some kind, it is a single and definite fact. However its reason is not anything special, it is something general ; it is not a single and definite fact, but it is a law of universal application ; it is not transient, but a conception of things in which the incidental and temporal are eliminated. A reason is applicable to all cases of the same kind and also to all cases of any time. A cause, i. e. a fact, if it truly exists, is real (not true) ; a law, i. e. a reason, if it really obtains in nature, is true (not real), and any attempt at explaining natural laws as a product of evolution, being based upon the view that regards them as causes not as reasons, as real not as true, as a description of temporal existences, not as viewing facts *sub specie aeternitatis,* must from the outset be a failure.*

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* I laid down my views on the subject in a short monograph of only 82 pages, entitled *Ursache, Grund und Zweck, eine philosophische Abhandlung zur Klärung der Begriffe* (Dresden : R. von Grumbkow, Hof. Verlag, 1883). In all main points

Mr. Peirce attempts to explain natural laws as if they were single and concrete facts. Where we have to look for reasons he evidently employs the method of searching for causes. He treats that which in its very nature is eternal, as if it were temporal. He regards the everlasting, the imperishable, the immutable as if it had originated, as if it were transient, as if it were the product of a development.

VIII.

LAWS NOT INEXPLICABLE.

But is not Mr. Peirce justified in declaring that law remains unexplained? Is law really as he says "hard, ultimate, inexplicable, immutable"? Law is to be regarded as immutable but not as ultimate or inexplicable, and thus Mr. Peirce's denunciation of natural law is not

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I maintain the same standpoint still. See also *Fundamental Problems*, the chapter on Causality, pp. 79–91 and 96–109.

Since the publication of my German pamphlet my confidence that we can, (not only in the special sciences such as chemistry, mineralogy, botany, etc., but also in philosophy) arrive at truth, has rather been confirmed than shaken. We can create a common ground on which all philosophers agree, as much as mathematicians agree concerning the Pythagorean theorem. But in order to achieve this ideal, philosophers must abandon all attempts at originality. The hankering after originality is an inherited evil in the family of philosophers. The first philosophers were poets, priests, and prophets; later on in the natural evolution of human culture, a differentiation of their combined functions took place. Originality is a virtue in the poet but a vice in his brother, the philosopher. The philosopher's ideal must be to free himself of all individualism, subjectivity, and original conceptions; he must become strictly objective. He must renounce his personal likes and dislikes, and make his soul a mirror of nature, faithfully and correctly to represent the facts and nothing but the facts. This is the ethics of philosophical inquiry, and the philosophy that takes its stand on this principle we call positivism.

Almost all divergencies of importance in the different philosophical systems can be traced to different conceptions or rather misconceptions of causation.

This last century since Kant has been the most fertile age of original world-theories, all different in style and manner of construction, but all alike in so far as the author of each system had strained his utmost efforts to be original. Thus all these world-theories were so many beautiful poems on ontology, they were so many grand air-castles produced by the magic wand of a fairy-tale causation. The philosopher's aspiration must not be to present original ideas but to reach that one solution which any other unbiassed thinker must find, to express that truth which in the end will have to be recognised universally, to formulate facts in objective exactness. The degree of originality in philosophic thought marks the degree of aberration from the common aim of the one sole solution, and the greatest source of original ideas is the confusion of cause and reason, of *Ursache* and *Grund*, of event and law, of fact and truth.

justified. All natural laws must be conceived as forming one system ascending from the lower to the higher, from the more special to the more general. And the more comprehensive law represents in each case the reason for the less comprehensive law which is comprised in it. Thus we must finally reach the most general or all-comprehensive law, which is a description of that which is a universal quality of existence.

There is a wrong notion prevalent among many thinkers that the most comprehensive description (law or reason) of a certain kind should, as in a nutshell, contain and immediately explain all that which it embraces, so that if once in its possession, we should be omniscient as to all the rest. The most universal law is looked upon as the centre of existence—*das Innerste der Welt*. If we could but get there, we should solve all the world-problems by mere intuition. This is the old error of the students of magic, whose hope is expressed by Faust when he says:

> "*Dass ich erkenne, was die Welt*
> *Im Innersten zusammenhält.*"
>
> That I may detect the inmost force
> Which binds the world and shapes its course.—*Bayard Taylor.*

Comprehension is not attained simply by finding out and stating the most general feature of a certain class of facts; comprehension does not alone consist of generalisation but also of discrimination. The differences among less general laws must be recognised as results of special conditions. And any knowledge of a general law reveals nothing about the special conditions under the influence of which the same law will work differently.

It is but too often overlooked that the more general a statement is, the less it will contain, the vaguer it will appear, the emptier it must be. There is no royal road to cognition and mere generalisation is of no avail. We shall have to investigate the details of every case and view it in its relation to the general law. The general law must be viewed under those conditions which will invariably produce the same special modifications.

But do not the most general reasons remain uncomprehended?

Do we not at last arrive at an ultimate law which, then, must be hard and inexplicable?

Those laws which appear in every respect to be universal are the formal laws of mathematics, arithmetic, and their kindred sciences. And all these formal sciences are not only *not* mystical, unintelligible, and inexplicable, but they are the most perspicuous, most reliable, and most certain knowledge we possess. All their theorems admit of the most rigid demonstration, and the last shadow of mysticism has been removed by Hermann Grassmann. Owing to his searching investigations we are no longer in need of axioms which were formerly supposed to be the indispensable basis of mathematics.

There is however a basis of formal thought left which we cannot dispense with; that is the idea of sameness, generally formulated as the law of identity. Is perhaps the law of identity by which all the regularities of nature are to be accounted for, inexplicable? Hardly! The idea of sameness has a solid basis in the facts of experience.*

IX.

CONCLUSION.

The contrast between Determinism and Indeterminism is old, yet Mr. Peirce has worked out quite a new aspect of Indeterminism and places it upon a basis that appears to be a more solid foundation than it ever before possessed. At the same time he succeeds in making some of its consequences so plausible, that in this new garb it will appeal more strongly than before to scientifically trained minds. With all deference to the logical acuteness of Mr. Peirce and with all admiration for the originality and depth of his thought, we cannot, however, accede to the new philosophy which he proposes.

Mr. Peirce's propositions go to the core of all problems, they upset everything that has heretofore been considered as firm ground, they question the most fundamental concepts of the world-concep-

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*I expect to discuss the problems of sameness, of chance, of mechanicalism, and the freedom of will in the next number of *The Monist* under the caption *The Doctrine of Necessity: Its Basis and its Scope.*

tion upon which all scientific reasoning and the methods of the positive philosophy rest. Thus they set us a-thinking and will help us to attain greater clearness on points which are to all of us of greater concern than may at first sight appear. For the fundamental problems of philosophy have a deep practical importance. Their importance is less noticeable, less obvious, but at the same time more sweeping the more fundamental they are.

Let us here in concluding this article consider only one, but the most striking one, of the consequences to which both views lead.

Indeterminism leads to a conception of God which although we may call it "mind" and place it at the beginning of the world, is pure chance or the indeterminateness of an arbitrary sporting. Determinism on the other hand leads to a recognition of God as that something in nature that is as it is, that has been and will be. Science, whose method of cognising the truth is and can only be to know in parts, attempts to describe the partial qualities of this something in natural laws.

It is of great consequence in practical life whether God is what the name Jahveh intends to convey, eternal and unalterable being, immutable sameness in the perpetual flux, irrefragable law in the changes of evolution, or whether it is the *Τυχή* of the pagans, i. e. indeterminable and absolute chance, unaccountable, irregular, capricious, and uncertain.

The God-idea is the basis of ethics. It matters little whether we use or avoid the name God, for the atheist has also a God-idea in his conception of that existence in which he lives and moves and has his being. This God-idea is always the ground from which we derive our rules of conduct; and whenever we change, not our terminology but our idea of God, we shall as a matter of consistency have to change our views of ethics also.

EDITOR.

LITERARY CORRESPONDENCE

I.

FRANCE.

PROFESSOR LOMBROSO is unremitting in bringing up new facts in support of his doctrines. His *Nouvelles Recherches de Psychiatrie et d'Anthropologie criminelle* (New Researches in Psychiatry and Criminal Anthropology) comprise a good many, gathered from the latest works relating to criminality. In adding psychiatry to anthropology in the title to this volume, writes the learned author, "I return to my starting point and to the true source of these studies, which is only a clinical demonstration, but a more perfect one, of what is called in old psychiatry, moral insanity and masked epilepsy." Lombroso may be reproached with a certain exaggeration, a certain haste, in his views respecting criminal man: yet can we conceive of an opiniated inquirer who would not have faith in his work, and who could resist the desire to generalise from the facts already obtained? But I have little doubt that the works of his school will end in producing a precise conception, which will force itself on the attention of legislators and jurists. I say *precise*, because one has a glimpse of the truth in criticising the evidence offered to us in such variety, though what one perceives sometimes vanishes.

How can we conceive of the criminal type? This is a prime question on which it is not useless to insist. Crime, as M. Tarde tells us, has become a real profession in our modern societies. Although there is some truth in it, we must not allow ourselves to be deceived by the subtle form of this paradox. There is no want of

delinquents carrying on a business ; the army of crime recruits itself from all classes, it includes peasants and workmen, chemists and physicians, lawyers and merchants, soldiers and poets, that is to say, subjects possessing some one at least of the aptitudes which form a calling. We have here, then, on the one side, wretches destitute of all aptitude for a trade, and on the other men who do not adhere to the exercise of their profession, although capable of making use of it. The delinquent appears to us, in short, as stricken with some degree of professional incapacity, and if crime has become a profession in some sort, the criminals of every category first represent, if I may thus say, a professional or social waste. The study of the causes and the signs of this waste is just what has been undertaken.

The social causes of crime have often been put in prominence. They are numerous, and persons unacquainted with these questions are inclined to attribute the largest proportion of crimes and offences to distress and misery. But, according to the inquiries of Morrison, for example—and by the confession also of M. Troal, of whom I shall speak immediately—misery rarely produces crime, and if we examine carefully, one after the other, the social causes of crime, we shall soon be convinced that poverty, drunkenness, etc., feed criminality by producing degeneracy of the race, rather than that they directly arouse the criminal.* We are compelled then to seek the immediate reason for a crime in the criminal himself, and to learn to distinguish the delinquent by means of the methods fixed upon by anthropologists and physicians.

At first, as we know, Lombroso recognised only one criminal type. He has since found that there are many. The distinction between the thief and the murderer is classical. Benedikt has described the born vagabond ; Brouardel, the feminine type. It is always necessary in describing a type to resort to the methods of natural history, to pass in review the emotional and intellectual characters, the physiological or functional characters, the anatomical or morphological characters, and endeavor to seize certain constant

* I reserve, as well understood, the question of education, in order to simplify matters here.

correlations between the signs one has been successful in observing. The delinquent may be described as abnormal from the emotional standpoint, and as deficient or perverted from the intellectual point of view. We could then begin by describing exactly certain intellectual and emotional types, and it is no exaggeration to say that experienced magistrates in their way have done so, those even who, with M. Proal, we shall see to be the most hostile to anthropological theories. But they are reluctant to admit any relations between the moral agent and physical nature, whereas the new school, on the contrary, makes every effort to discover and determine them.

How far is it successful? That is the question.

If we take the ensemble of the emotional and intellectual characters, we shall affirm with Professor Pelman (whose opinion Mr. Christian Ufer has made known in *The Monist*) that the portrait of the imbecile traced by Sollier corresponds strongly to that of the born criminal of Lombroso. We shall aver also that this portrait does not answer equally well for all kinds of delinquents, and that we pass gradually from the malignant imbecile to the average or mediocre man. The same observation applies when we study the physiognomical characters of which the little book of Lombroso furnishes a great variety. We shall have evidently to consider, with respect to physiognomical characters and physical marks, a strong type (certainly inborn), a weak type, and, I would add, an *acquired* type.

If we take functional anomalies—those of touch, sight, etc.—we shall be struck with their number as well as with their importance, and, I may say in passing, the alienist physicians who continue to be the adversaries of Lombroso discover every day fresh examples of them, which could give to the conception of the type, the reality they still deny it to possess. The latest discovery, and certainly one of the most striking, is that which Ottolenghi has just made, in the clinic of Lombroso himself, respecting the visual field of epileptics and of the morally insane. According to the researches of Ottolenghi, the visual field will be remarkably limited, both with epileptics not in paroxysms, and with born delinquents, but more often with the latter. They present a partial hemiopia, vertical and

heteronymous; the periphery of the field is sinuous and irregular. This discovery tends, then, to confirm the analogy of epilepsy with criminal tendencies; it will furnish a sign of the first order for a well marked category of delinquents.

Let us pass on to morphological characters. The abundance of evidence is truly extraordinary, and one cannot abstain from remarking, in this relation, that a certain number of the anomalies designated ought to be found, and indeed are found, in morally healthy subjects, and that therefore they do not alone suffice to furnish a ground of distinction from the medium normal type. As certain functional anomalies are not wanting either in many subjects whose morality remains perfect, it would be necessary to aim, it seems to me, at establishing an approximate *quantum* for the criminal type, or rather for the *kinds* which ought to lead, by sensible gradations, from the most pronounced type to that which is the least so. Some scattered elements of this work will be found in the book of Lombroso; the studies of Clouston on the palate (deformation of the palate existed in 19 per cent. of the general population, 61 per cent. of imbeciles, 35 per cent. of criminals, and 33 per cent. of madmen); the monographs of Ottolenghi and Roncoroni on the pathological anomalies of 100 criminals, with an indication of the number and the nature of the anomalies, etc.

In short, it cannot be questioned that the new school holds its ground well, since it circumscribes and makes more and more precise the object of its researches. In my humble opinion, it is of importance for it to get rid of hazardous or useless explanations, for it to tell us as little as possible of remote atavism—for if heredity is constant, it is not possible to trace it link by link as far as the deluge!—and finally for pure anthropologists and pyschiatrists to beware of themselves drawing practical conclusions from their doctrines. The applications concern jurists, and constitute a question of another kind, into which other considerations also enter.

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In the juridical domain, a French magistrate, M. Louis Proal, has just published a considerable work, *Le Crime et la Peine* (Crime and Punishment) which is truly the performance of an adversary,

but not of such an adversary as M. Tarde. M. Proal is an irreconcilable, and all his dialectic—charged a little too much with citations of which many are useless or prove nothing—turns on the absolute affirmation of free-will. He flatters himself to have demonstrated freedom, in which he is wrong. It is a matter of faith, as criticists have very well perceived. Human science can know only determinism; it proves only what it finds.*

M. Proal claims then to found on free-will the two principles of the moral responsibility of the delinquent, and the moral character of punishment, in opposition to the purely social point of view in which the new criminalists place themselves. The physical anomaly of the criminal seems to him a chimera, and he goes so far as to deny, or falls little short of it, the relations of frenzied impulsion with degeneracy. Willingly, perhaps, he would accept as truly mad and irresponsible only the insane, those who are shut up forever in the asylums!

Certainly, M. Proal possesses the experience of the magistrate, he has erudition and triumphs easily, in details, by the defects and deficiencies of the doctrine he combats. His objections, nevertheless, do not touch the general conception which connects crime, in a great number of cases, with the disorders of the living machine. He is not willing for the criminal to differ from the honest man otherwise than by his inclinations and will, as though will and inclinations had no dependence on the state of our organs, and as though heredity entered for nothing into the "personal factor" of character! He is not averse to saying that moral and physical decadence is always the effect of criminality, as though it was never its

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*A ground of mutual understanding would be supplied by accepting the distinction proposed by P. Carus between *constraint*, which alone excludes freedom, and *necessity*, which leaves our will free within the limits of our character. Already Plotinus had written: "How can it be said of this being (he who obeys his nature) that he obeys, if he is not constrained to follow something external?" (6th *Enn.* lib. viii.)—I recommend to the curious on these questions the book of M. BERTAULD, *Méthode Spiritualiste, Esprit et Liberté*. M. Bertauld places freedom in *autonomy*, which is perfectly reconcilable with psychological determinism; there is on the contrary, he declares, no radical contradiction between determinism and free-will, and indeterminism is an absurd conception. The work is well written, and I do not intend to belittle it by mentioning it in a simple note.

cause! He allows with that attenuations of moral responsibility, resulting from physiological and physical influences, as though a weakened responsibility was a true moral responsibility in the sense he understands, and as though the judge had the means of deciding at what moment morbid evolution involves irresponsibility!

These absolute principles once established, he defines an offense "the violation of a social duty," and he grants that the judge "ought to take account of the importance of the social evil resulting from the crime." It is sufficient for him that the *intention* and the *responsibility* is appreciated, in order to attach the penalty to morality. In default of which, writes he, there would be no more justice. It is a noble solicitude, that of wishing to justify punishment in the eyes of the guilty person himself, and to inflict it on him as an expiation of the evil he has committed. But here an error is fallen into, which is, in my opinion, to suppose that the law punishes "morally." The law has not the power to inflict moral chastisement. It strikes the delinquent materially, in his goods, in his person; the rest depends not on the judge who applies the law, but on the judge who is in ourselves, the avenger more or less severe according to the complex incidencies of education and heredity. Moral chastisement can exist only in the conscience of the delinquent, and, if this conscience is wanting, or nearly so, all the affirmations of the judge cannot cause the punishment to have the quality of moral expiation for the guilty. The criminal will submit to it through force, and the magistrate will apply it by necessity.

Such is, I think, the true situation. The new school of criminology will introduce reforms in the practice of the tribunals and in the administration of the penal laws; it will not change justice and could not compromise morality. And now pardon me for adding to these some further remarks, in connection with the books of which I have still to speak.

* * *

The interests and the passions of men, habits too long acquired to alter, can be considered as the immediate and constant motives of societies, the *vis à tergo* of their evolution. Political theories work on a pre-existing social matter, and more or less in the direc-

tion of the tendencies which have produced the state of things that they aspire to reform or overturn. In a general manner, they possess then neither the power necessary to create, attributed to them by utopists, nor the power to destroy, which makes them appear so formidable to conservatives. Without denying all efficiency to the intellectual ideal, it is permissible to say that its action has a bearing purely conditional, and that the revolutions of growth of social organisms never absolutely depend on the theorist who establishes its diagnosis, and endeavors to regulate its march. We behold, in a word, history making itself, rather than that we make it ourselves and according to our inclination. It is hardly possible for us to foresee the remote effects of our inventions, of our discoveries. In sociology as well as in physics, man remains the servant and the interpreter of nature.

There is in this, if I am not deceived, a reason for reassuring ourselves concerning certain alarming predictions as to the future of our civilisation. In his book *La Civilisation et la Croyance* (Civilisation and Belief), the second edition of which has just appeared, M. Charles Secrétan estimates that our societies will sink down, at least that they will neither return to a purified Christianity—a Christianity that has never yet been practised—nor restore the great principles of the free soul and of God. M. Secrétan is a brilliant writer and has a noble heart, and his book contains at least one truth of the first order, always good to repeat, which is that nothing durable is founded on hatred. He dare not flatter himself, however, that his warnings will be listened to, his lessons observed. Perhaps he exaggerates the real dangers which menace us, because he enlarges, unknown to himself, the rôle of philosophic doctrines, and attributes to the mind a kind of discretionary power over the sentiments and the interests of mankind.

Here we have the intellectualist mistake. It appears chiefly in the revolutionist propaganda which agitates our Europe, and of which M. J. Bourdeau makes known the ideas and the progress, in a clear and interesting manner, in his work *Le Socialisme allemand et le Nihilisme russe* (German Socialism and Russian Nihilism). It is a fact well worthy of remark, that the genial promoter of the

theories of Fourier, St. Simon, and others—I refer to J. J. Rousseau —had had the conjecture of a social physiology: fragments of his that have been published show well that he did not regard the age of gold as one of savagery, and that he foresaw the part that human nature had to do in our calculations of government. What is found just in his writings could even well be intimately connected with this naturalist point of view. But he lived in the century *par excellence* of rationalism, where such ideas could be neither developed nor understood; he constructed the political world according to reasoning, and I shall not be far wrong in thinking that socialism represents in its turn, definitively, at least in its essential features, a last offshoot from this rational school which has already, a hundred years ago, made us the villainous present of Jacobinism.

Absolute communism has no chance of ever realising itself. Neither Karl Marx, nor Engels, has ventured even to indicate the possible form of the society of which they dream. The action of the socialists, in turn, could have as its result the substitution for our régime of excessive individualism and of disordered democracy, a régime of corporations and of more regular co-operation, by one of those reversions to institutions anciently delineated that history presents to us, and which respond to a sort of "law of oscillation" of social phenomena. There is no occasion, however, to give it long consideration to establish that these returns do not exclude novelty, for the apparent form of social arrangements is of less moment than the nature of the ideas and of the relations which sustain them, and here is what I would readily call a "law of progressive repetition." As to the exact sense of the evolution which there manifests itself, the great task of disengaging it falls to the sociologists. But the school of Marx has wished to see things only from one side, and his theory, which is too simple, does not embrace the complexity of the phenomena.*

Without any pretension to renew the face of the world and to

* In this relation, I will particularly refer to the great work, in course of publication, of M. B. Malon, *Le Socialisme intégral*, and I recommend at the same time the article *Justice and Socialism* of M. Belot, which has been much spoken of, in the number for February last of the *Revue Philosophique*.

interpret economic phenomena in favor of an arbitrary thesis, M. Ad. Costa, in his opuscule *Alcoholisme ou Épargne* (Alcoholism or Thrift) places before us the truly immediate question of socialism, in the presence of this "social dilemma" which reformers willingly mask in their discourses: on one side, alcoholism, life from day to day, the unreasonable and momentary illusion that one imbibes with stimulants, the wasting of daily resources, finally the pauperism which leads to social servitude; on the other side, thrift under all its forms, a provident life ordered with intelligence, abstention from dangerous stimulants, progressive comfort and increasing happiness, more and more freedom. Yes, here are the two issues between which the workers have to choose. Those who read this little book can learn there, both what milliards of salaries alcohol has devoured, and what misery both physical and moral it engenders, and the degradation that it brings to those who give themselves up to it. To many this may be only the small side of a great problem. Without thrift and the qualities which render it possible, there is neither family nor morality. How can a man pretend to possess instruments of labor when he deteriorates the chief of all, his own living machine? How can a social class have the illusion to believe that a revolution ever profits him who is neither able nor capable of preparing and conducting it?

* * *

The last work of M. E. de Laveleye, *Le Gouvernement dans la Démocratie* (Democratic Government),* published a few months before his death, treats chiefly of the organisation of public powers. This question has importance to-day, writes the learned author, only in relation to the great questions which will agitate the world of to-morrow, the social question and the religious question. Conservatives make use of government as a brake; revolutionists seek to seize hold of it as a lever. The fact is that our Europe marches towards democracy. But will democracy give us freedom? On what conditions can it form an acceptable régime and one compatible with high culture?

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* All the works mentioned in this article are published by F. Alcan.

It is not necessary for me to explain here the reasonings and conclusions of M. de Laveleye. His book, to speak the truth, is less a book than a collection of Review articles and historical sketches. The politics of action will find in it too much theory, and philosophers will regret the absence of master-ideas. It is well to read this work for its practical advice and the rich details that it contains; we must not look there for a real historical or social conception.

The sentiment which is dominant, finally, in all the writings of which I have just spoken is inquietude, and unfortunately it is only too well justified. We see, in our Occident, alcoholism increasing with salaries, the hatred of classes with wealth, immorality with enfranchisement, public burdens with political progress, the aggregation of individuals with great industry, criminality even with education. The wealth acquired is compensated for by new evils; it seems that all our conquests have the result of putting social order in peril, and that the civilisation of which we are so proud is bound, in a short time, to become bankrupt.

We have, nevertheless, a weighty capital with which to restore ourselves, and it is only right to say that it is beginning to be applied. But we must give up some errors as to which it is good time to open one's eyes. One of the gravest, certainly, is always to place instruction before education, and the mind before the heart. We have allowed to drop, at the same time with religion, the difficult task of forming moral habits. Let us understand in a word that, in a society, the most valuable thing is neither the steam engine, nor the bank note, but the man himself, and that in the man even it is not ability or special knowledge but *character*.

Lucien Arréat.

II.

GERMANY.

In the January number of *The Monist* I mentioned a treatise written by G. Ludwigs, in which the novels of Wilhelm Walloth were criticised, and expressed my surprise that in the work discussed a personality unquestionably diseased was stamped as a poet of almost the first order. Much that then struck me as strange and was unclear to me, was later rendered plain and intelligible; and the explanation was not long in forthcoming.

As the newspapers shortly afterwards announced, Ludwigs was simply the pseudonym of a sixteen year old gymnasium student of Darmstadt, who had already attracted the attention of wider circles by the poems he had written. It happens at times that individualities of this description bear out in the advanced years of their life the promise of their youth. Extraordinary things were to be expected, though I cannot say *hoped*, of Ludwigs; but the expectation was not fulfilled. He, an instance of real decadence, yet a boy in years, voluntarily took his own life, deeply mourned by his literary associates, the "Young Germans," in whose magazine *Die Gesellschaft* a brother of the deceased is now publishing biographical notes and literary remains—novels and poems—all more of a psychological than literary interest. The biographical notes plainly mark out a personality smitten with psychosis and suffering in a marked degree with hyperæsthesia, and the literary remains reflect this mental condition; light-sensations especially playing an important rôle. His nervous system was too weak to assert itself permanently against the outer world. This pressure, which objectively considered was not at all a powerful one, did not admit of the rise of a powerful sense of life; and especially oppressive to the precocious youth was the life of the school in the most varied ways, and in an unexpected moment the flame of his life went out.

As psychologists, we should find considerable interest in the study of this phenomenon of Ludwigs. We must admire his abilities and his capacity for work, which not only enabled him to per-

form his duties as a student of the gymnasium, but also left him time enough, in addition to his literary work, to employ himself with the psychological writings of Wundt and Münsterberg, which he desired to turn to account in the field of poetry. We must mourn too his sad fate. But we have no reason to *glorify* such a diseased personality, as is done on many sides in the April number of *Die Gesellschaft.*

But this is a peculiar characteristic of the Young-German writers and their confrères abroad, that they make the diseased take the place of the sound, and the ugly of the beautiful, and thus help greatly to undermine the health of the common mind. There are it is true a goodly number of trusting souls who believe that we may regard with security and composure, the endeavors and tendencies of the naturalistic apostles, as our taste in literature and art—a few cases excepted—can surely not be reversed into its opposite. On this point, perhaps, those who so think are not wrong. But the stage may easily be reached where literary taste no longer remains determinative, and the place of the æsthetical interest in things is taken by the scientific, before whose judgment-seat no difference of the beautiful and the hideous exists.

This view is the direct outcome of philosophical materialism. The latter doctrine may at present, it is true, be regarded in all its main points as definitively overthrown, so far as philosophy is concerned ; but in the domain of *belles lettres*—a term not quite allowable here—the wave which it has created still sweeps mightily onward. Two new works seek to break its force, which have been published in the series *Gegen den Materialismus* edited by Dr. Schmidkunz (Stuttgart : Krabbe). The first treatise bears the title *Materialismus und Æsthetik* and has no less a person as author than Moriz Carriere ; the second treats of *Materialism in Literature* and is the production of the northerner Ola Hansson. I am unable to say that these two treatises have especially satisfied me. Both authors look at the subject too one-sidedly from the point of view of æsthetics, and have not by far given a sufficient recognition to the psychological aspect of the subject. I recognise indeed with Carriere, in spite of all the apparent mutability of taste, a normative æsthetics ; but

that man bears within him an ideal of life, as the seed does the plant with its blossom and its fruit, I am unable for psychological reasons to concede. I grant that I find with Ola Hansson psychology in so far poorly represented in the naturalistic literature as the growth and evolution of character is made to appear a much too simple process; and I concede furthermore that the evolution of character in the individual case is very far removed from anything like resemblance to an example in mathematics, inasmuch as quantities may be lacking us in such a case which are absolutely necessary to be taken account of for a correct solution of the problem ; but these missing quantities need not for that reason be at all matters of mystery, in their true nature wholly unknown to us.

To what limits the domain of mystery has shrunk and to how great an extent its expressions may be made intelligible and to a certain degree even may be "regulated," provided, equipped with thorough knowledge, we courageously look the things in the face, is exemplified in a marked degree by a voluminous work of the above mentioned Dr. Schmidkunz. The so-called Suggestion passed for a long time as something wonderful and had to rest its defence in the hands of the representatives of a psycho-physical mysticism as opposed to a "surface"-psychology which in the words of Du Prels occupied itself exclusively with surface work without penetrating to the depths. Schmidkunz now points out in his *Psychologie der Suggestion* (Stuttgart, 1892: Ferdinand Enke) in a very comprehensive manner what others had very plainly hinted at before him, namely, that in the case of a very great number of phenomena we have, exactly viewed, to deal only with some very simple and quite explainable things which unite in the composition of what is commonly called suggestion. The contents of the work, however, are not exhausted with this; under the influence of a tremendous scope of reading, the author treats the whole domain of suggestion, and if he understood more perfectly the art of good writing, he would have earned a much greater gratitude than that which in any event is his due.

Schmidkunz touches repeatedly in his work upon a domain which still belongs to the most obscure of the history of civilisation, namely

witchcraft and the trials of witches. This topic, likewise viewed from a psychological point of view, forms the subject of a special treatise by SNELL, entitled *Hexenprocesse und Geistesstörung* (Munich, 1891 : J. F. Lehmann). In this book no rôle is ascribed to suggestion, but as the title indicates the treatment centres about the question of what significance mental disorders generally may have possessed in the trials of witches. The author concedes that demented persons became the victims of the trials for witchcraft either because they had rendered themselves by their character open to the suspicion of a compact with the devil, or because they had by self-obtrusion directly drawn upon themselves this persecution, but asserts nevertheless, that the number of demented persons that fell victims to the trials for witchcraft, was comparatively very small. Mental disorder however played in so far a great rôle in the trials for witchcraft as demented persons, especially such as suffered from hysteria, became false witnesses and brought sound and healthy people into the hands of the persecuting judges.

As I am now treading the province of psychiatry, I will mention, that WILHELM GRIESINGER'S celebrated work *Pathologie und Therapie der psychischen Krankheiten* has just been published in its fifth edition under the direction of Dr. Levinstein-Schlegel, the director of the Maison de Santé in Schöneberg (Berlin : August Hirschwald). I do not of course specify this work solely for the sake of the physicians who may be readers of *The Monist*, but am rather impelled to the act by a universal psychological consideration, for Griesinger in the first edition of the work also made a name for himself as a psychologist. It appeared originally in 1845, and possessed a compass of 396 pages ; the fifth edition numbers 1100 pages and has increased considerably in size as compared with the fourth. Whether the augmentations have added anything to the value of the work is a question which must first be submitted for answer to our physicians. In psychological respects its value has in so far been very much increased as the experiential data have assumed much greater proportions : the psychological analysis however has been somewhat neglected.

Psychological analysis in fact is not the strong side of the ma-

jority of our psychiatrists. What Griesinger and still more so Spielmann sought after in this direction, has been greatly forced in the background. As a general rule our inquirers content themselves with a description of symptoms and the construction of a more than copious nomenclature, in the midst of which the connections are very easy to be overlooked. Among the commendable exceptions is to be named in this respect the well-known Vienna professor Theodor Meynert. In addition to his extensive psychiatrical works he has also published a considerable number of lectures and discourses partly in magazines and partly in separate brochures. These discourses are now presented in collected form in a book entitled *Sammlung von populärwissenschaftlichen Vorträgen über den Bau una die Leistungen des Gehirns* (Vienna, 1892, Wilhelm Braumüller). The most noticeable discourses are the following : The Significance of the Brain for the World of our Ideas; The Mechanics of the Cerebral Structure; On the Feelings; On Illusion; On the Significance of the Development of the Forehead ; The Mechanics of Physiognomy; Brain and Culture ; The Co-operation of the Parts of the Brain ; On Artificial Disturbances of the Psychic Equilibrium. No words need be wasted in the recommendation of the book of Meynert.

Chr. Ufer.

DIVERSE TOPICS.

PROFESSOR HAECKEL'S MONISM.

There are two Latin proverbs which are both good rules for controversialists who seek for the truth on different roads. The one reads: *In verbis simus faciles dummodo conveniamus in re*, the other reads: *In verbis simus difficiles ut convenia mus in re*. A difference of terms often prevents two thinkers from noticing that they actually agree. Therefore let us be lenient in terms and never lose sight of their meaning and purport. On the other hand terms are not indifferent, and the selection of terms should not be regarded as arbitrary. In order to arrive at a solid and permanent agreement, permanent because it is based upon objectively demonstrable truth, we have to be scrupulously careful with our terminology; and we must not allow the arbitrary employment of terms where they are inappropriate. An inappropriate usage of terms will lead us astray and involve us in confusion and error.

Says Professor Haeckel:

"The divergences which exhibit themselves in our respective unitary conceptions of the world are in part only apparent and in part occasioned by the divergent significances of our fundamental ideas."

This seems to me very true and, indeed, I have very good evidence that it is true. Professor Haeckel writes in his letter to me:

"I have marked in *red* those passages of your kind review of my 'Anthropogeny' in which I agree with you and in *blue* those in which I differ."

Now I find all those passages where I should have anticipated an objection on Professor Haeckel's part marked red, while a blue mark appears where in my opinion there is only a difference of terminology. It is the following sentence on page 441:

"Psychic life is absent so far as we can see in the primordial world-substance as it appears in the form of a nebula; it is absent still in the primordial state of planets. It appears with the subjective states of awareness that rise into existence in organised life. The subjectivity of unorganised matter is, in comparison with man's subjectivity, to be considered as a blank; i. e., if there is in it a state of awareness, which we have reasons to doubt, it is apparently without meaning; it

does not symbolise external objects; it is no mind; it is, as it were, blind. Yet the aim of evolution being the development of psychical life, shows that the subjectivity of unorganised matter is spiritual in its innermost nature."

This difference is probably a difference of terminology only, for I insist most strongly on the doctrine that all nature is alive. However, I make a difference between "life" and "soul." Nature is alive throughout, but it is not ensouled; the action of chemical elements and of the falling stone are no psychical actions.*

Another blue stroke appears at the following passage:

"We grant willingly that mechanical explanations will serve for all motions that take place in the world; even the motions of the brain take place in strict obedience to the laws of molar and molecular mechanics. But a mechanical explanation is not applicable to that which is not motion. If it were applicable it would not be desirable, for it would be of no avail. Mechanical explanations are to be limited to mechanical phenomena. Feeling however is not a mechanical phenomenon, and an idea, being a special and a very complex kind of a feeling, or rather and more accurately expressed, being the special meaning of a very complex feeling, is not a mechanical phenomenon either."

The subsequent sentences are again approved by Professor Haeckel; they are marked red:

"It is true that when a feeling takes place and when an idea is thought in the brain of an organised being, that a certain nervous action takes place. The nervous action is a motion and this motion represents a definite amount of energy. There is no theoretical difficulty, although there are almost insurmountable practical difficulties, in measuring the definite amount of potential energy that is changed into kinetic energy when a man thinks. Yet the brain-motion is not the idea and by a mechanical explanation of the brain-motion we have not even touched the problem of what the nature of the idea is, why ideas originate and how they act."

We do not understand how Professor Haeckel can object to the view that ideas and feelings are no motions. We fully grant that the nervous action that takes place when an idea is thought is a motion, and that, considered as a brain-action, it is mechanically explainable. But by feeling we understand not the brain-action but a state of awareness, and states of awareness are not objective phenomena, they are subjective phenomena; whereby we do not at all deny that there are no feelings which must not in their objective existence at the same time be supposed to be brain-motions.

Feelings are not motions but ideas are still less motions. Ideas are the meanings which certain feelings that are representative of certain sets of experiences have acquired. Is the meaning of a word a motion? Can the significance of words be mechanically explained? The meaning of ideas, the significance of words, the representativeness of feelings are phenomena which have nothing to do with motions but constitute a domain of their own.

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* We intend to express our views more fully in a special article to be published in a subsequent number of *The Monist*.

Professor Haeckel in our opinion can mean only that there are no feelings in themselves, but all our feelings are at the same time brain-motions, and as such they are mechanical phenomena. We have to add, however, that an explanation of the mechanism of brain-action does not as yet explain the significance of mental operations.

Professor Haeckel insists so strongly upon his view of monism as being mechanicalism that this seems to mark a difference in our conceptions which might be of consequence.

I was very glad to notice the long strokes of red along the passages which contain my proposition that "the evolution of organised life is a natural process having a definite aim"; further, along the paragraphs concerning the world-order as being moral in so far as the world-order is the basis of morality, and also those which represent God as being that power of the world-order obedience to which is called morality.

Professor Haeckel's agreement with these passages indicates that those expressions of his to which we should take exception, and which he employs again in his article of the present number, might not be regarded as divergences.

Professor Haeckel's definition of God appears to us insufficient, and also his definition of immortality.

God is not only the sum-total of matter and force, God is also that quality of the world which the naturalist describes in natural laws. God is the life of the world, he is that feature of existence which makes mind and knowledge possible. In addition he is that which men call progress, the ideal of the future that lives in our souls and the principle of evolution in nature.

There is a deeper truth too in the doctrine of immortality. There is a conservation of matter and energy, but there is also a preservation of soul. Says Professor Haeckel, "the human soul is a very highly developed vertebral soul." If that is so, the soul of our fossil ancestors continues to live in us. This soul has been altered, it is true, but the alterations are not so much a loss as a gain. The alterations consist in the additional growth of new powers and represent a higher development. All that which was worth preserving has been preserved.

And as it has been in the past, so we can confidently expect that it will be in the future. All that is worth preserving of our souls will be preserved in the ages to come. Our souls will live and develop to higher possibilities. They will be transmitted from generation to generation, advancing on the unlimited path of evolutionary progress. P. C.

THE RELIGION OF SCIENCE.

There was during the last winter great excitement in Germany, concerning a new school-bill proposed by the chancellor Caprivi, and the late Prussian minister of cultus, Zedlitz-Trützschler. This school-bill proposed to take the direction of the public schools out of the hands of scientific men and transfer it to the

clergy. The idea of the Emperor was to let the education of the young be guided in a religious spirit. He intended to wage a war against atheism.

Among the pamphlets which were written during the crisis, is especially noteworthy the monograph of the late minister of cultus, Herr von Gosler, whom we should count among the most conservative of Prussian officials. His opposition, accordingly, is the more remarkable, and his objections had much weight with the Emperor.

The Emperor has withdrawn the bill. Nevertheless, the spirit of ultra-conservatism, which shows itself in an outspoken hostility against science, still remains strong enough, and new onslaughts upon the progressive policy in school and church, may be expected in the future. The question is timely still and will remain timely until there be a common agreement concerning the principles of education, so that our school politics may no longer be decided by and subjected to partisan strife.

Attacks that are made upon the very spirit of the institution of our civilisation and the political crises following thereupon are beneficial in one respect. They make people pause; they make them reconsider the principles by which they allow their conduct to be regulated. They make men conscious of the maxims that ought to underlie their lives and which generally are accepted by the majority without much reflection. The Prussian school-bill has indeed exercised a wholesome influence, for it called attention to the importance of principles and roused the German nation from religious indifference. During the conflict many scientists and professors of universities, who as a rule interfere little with politics, have raised their voice in warning, and many valuable ideas were expressed that found a strong echo in the heart of the people.

There are two articles written by German professors which have commanded very wide attention inside and outside of Germany. The one article was written by Professor Haeckel of Jena, in the *Freie Bühne*, the most important passages of which appeared at the time in *The Open Court*, No. 243. The other article was written by Friedrich Jodl, of Prague. It appeared first in the Augsburger *Allgemeine Zeitung*, and was republished in pamphlet form by Cotta, in Stuttgart. The former is an enthusiastic appeal to let science, which is the basis of our civilisation, remain the basis of our educational maxims in schools and universities. The latter discusses the philosophical principles of the conflict.

We are greatly in sympathy with the spirit in which Professor Jodl has treated his subject. Nay, more, we substantially agree with him concerning all main facts, and also concerning the sense in which our future development should be directed. Nevertheless there are points of disagreement, which we consider of sufficient importance to point out and explain.

The ultra-conservative party stands upon the platform that there can be no morality without religion, and no religion without dogmatism. For this reason dogmatism should rule supreme in the schools, and science should be subservient to religious creed. That this means curtailment of the freedom of investigation,

and the suppression of the liberty of science, is understood by all the parties concerned. The liberals so apprehend it, and the ultra-conservatives do not deny it. In the face of this situation Professor Jodl proposes the question, "Is there a humanitarian morality possible?" (p. 8 of the pamphlet "Moral, Religion, und Schule.") He says:

"A mere glance into the numerous anthologies of the moral wisdom of all times and centuries, shows that the agreement concerning moral ideas and norms is much greater, and it recedes much more into the dim past than is usually assumed. The writings of Laotse and Confutse, the popular literature of Buddhism, the fragments of old Egyptian law, the didactic poetry of Islam, contain a great wealth of moral wisdom, and treasures of the noblest ethical sentiment which the Christian Occident likes to regard as its own exclusive property. Especially the ancients, whose civilisation, in spite of much opposition, is still the basis of our civilisation, furnish us with a series of the most beautiful moral types and ideals, and there we find, beside many valuable features of Christian ethics, other no less valuable gems which we seek for in vain in the old Christian morality, and which were not recognised until Christianity came into contact with the Teutonic nations of northern Europe. Our ultra-conservatives argue that without catechisms humanity would stand helpless before the question of what is right and wrong, and what the growing generation should be taught in order to make them useful and honorable members of society."

In opposition to these views Professor Jodl urges that

"If society of to-day can at all tolerate that such doctrines as Christian morality are taught in our schools as the foundation of practical conduct of life, this is possible only because the ethics of the old biblical Christianity has, in the course of centuries, grown to be something quite different from what it was in the beginning. The throughout communistic, labor-abhorring, world-hating, miracle-infatuated morality of original Christianity, constantly dreaming of the collapse of the world near at hand, and suited only to the demands of the paupers of the time, could only be changed and adapted to the conditions of later periods of radically different conditions, with great difficulty. The Catholic church has done much to accomplish this purpose, and in a still higher degree Protestantism has made many concessions to humanitarian ethics and practical reason. These concessions, however, must appear from the historical standpoint, as adulterations of the Christian ideas. Exactly in the degree that Christian morality in modern times has remained a living power, it has ceased to remain Christian in the historical sense. . . . . The tendency of the whole development of the modern world is to conceive the moral norms as natural conditions of human society, and to understand them in their connection of the individual with the whole. This thought and sentiment must become in the child a living power, and morality cannot expect in this respect help from religion. Religion knows only the relation of the individual to God, as it is expressed in the mystical ideas of sin and mercy. Religion knows no duties and goals for humanity, but only for the egotistic desire of salvation for the individual. Religion knows no progress, no evolution, but only eternal life or eternal damnation. The civilised nations of Europe had to go through with many hard struggles in order to arrive at the idea that there is a humanitarian, and a natural, morality, in comparison with which all religious dogmatism must be considered as indifferent additions. Only on the basis of this conviction is it possible that there exist to-day so many religious

confessions of faith, and among them also those who are religious without having any special confession. Here lies the great duty of our time for enlightened legislation, for our schools, to take care that the universal Christian be developed from the narrow dogmatism, and, further, the universal human ideal, from the universal Christian. To expect this of the clergy of the different religious societies, would be a mistake. . . . . The theological spirit and the principle of free investigation, are irreconcilable adversaries. Every religion, of whatever denomination it may be, is stable in its very nature. It pretends to be eternal truth, and whenever it compromises with the idea of progress, it does so reluctantly, and in the form of concessions."

We agree with Professor Jodl in his opinion that our present dogmatic religions are entirely unfit to understand the demands of the present. And it is true that the humanitarian ideas of morality have been slowly developed from the crude and immature notions of the apostolic times. The aim of our moral development must be humanitarian ethics. But we disagree with Professor Jodl that we cannot expect a further evolution of our moral ideas from the clergy.

It seems to me that here lies the important difference between the old and the new world. Conditions favor religious progress in America, while the conditions in Europe cut off all hope and produce an ominous stagnancy.

The clergy of the old world, in Germany as well as in England, and in all Catholic countries, are appointed only on the condition of being ultra-conservative in religious matters, as well as otherwise. No young man whose enthusiasm would carry him so far as to suggest reforms on broader humanitarian principles, would be admitted in the church as ministers. And if he had been admitted by mistake, he would meet with a fate similar to that of the Abbé Lamennais, whose experiences are admirably described by George Julian Harney, in No. 213 of *The Open Court*.

The situation is greatly different in America. Our clergymen, our congregations, our churches, are perhaps more orthodox in many respects, and especially in their belief, than those of Europe. Nevertheless, they are more liberal in principles, and they are less obstinate concerning dogma. Most of our churches here do not even possess dogmatic creeds, or confessions of faith. The clergy of the Baptists, the Congregationalists, the Unitarians, are not bound by oath before taking orders, to believe in sundry articles and to preach certain doctrines which are supposed to be absolute truth. The Baptists, it is true, are as a rule very orthodox and very dogmatic, but they are liberal in spite of it, open to conviction, and not averse to going onward with the times. This attitude of the American clergy must appear inconsistent to Europeans who can, in ecclesiastical affairs, only judge from their own experiences. And it may be that their position is as much inconsistent as was for instance that of Newton, who considered the trash he wrote on some theological questions concerning the apocalypse as infinitely superior to his mathematical and astronomical works and did not see that the recognition of the law of gravitation would go far toward freeing humanity from many of those nonsensical ideas which he cherished so highly.

In former times I was inclined to blame the clergy for the lack of progressiveness in the churches, but I have come to the conclusion that not the clergy are to be blamed for retarding the broadening of the religious spirit, but the lay-members of the churches. I am personally acquainted with several clergymen of different denominations, Christian as well as Jewish, who conceive it their duty to point out the way of progress and to further the spirit of a scientific world-conception in religious matters. They advance exactly as quickly and exactly as far as they can in working out of the narrow dogmatism of the religious views of their flock the ideas of a broad humanitarianism.

It has often happened that clergymen, encouraged by their congregations, have grown too broad in the opinion of their narrower brethren, and it was customary, in former years, to cast them out according to the old fashion of dealing with heretics, which is still customary in European churches. The churches have become more careful here, for, whenever such a case happened, these liberal clergymen were, as a rule, not deserted by their congregations. Thus every act of removing a clergyman usually led to a schism, and it seems that, at least to some extent, the churches have of late given up their policy of removing heretics within their ranks.

This much is certain, that many among the American clergy are ready to progress with the times, and to accept the truth wherever they find it. In Europe religion is dictated to the people from above by government and church authority. The clergymen are servants of these authorities. Their consciences are not bound, as they ought to be, to teach the truth and nothing but the truth, but to teach the doctrines which their employers bid them teach. And this policy is still considered right and natural, even among liberal minded people.

In America the clergy are exponents of the views of their congregations. In Europe the congregations are separated from their pastors by a deep gap: there is no gap between the congregation and the clergy in America. Both are in the closest contact. Our congregations are more orthodox than European congregations; therefore our clergy is more sincerely orthodox, and more honestly narrow, than the European clergy. The European clergy are more scholarly, yet at the same time there may be more hypocrites among them in Europe who know better than they preach. But there is no doubt that with a further development of intellectuality and scientific insight, our congregations will become broader and more liberal and more humanitarian, and, with the congregations, our clergy are bound to develop in the same lines.

European theology is much superior to American theology in scholarly critique, in historical investigation, and in philosophical depth. Nevertheless, we must not hope from European theologians that they will undertake the great work of reform that is so much needed in our churches, which is nothing less than to reconcile religion with science; to let religion develop into a religion of science, preaching boldly and unreservedly those humanitarian ethics which stand upon the principles

of truth; that is, of scientifically proved truth, which finds the sanction of the moral "ought" in the facts of experience.

Professor Jodl says:

"The main objection of the supporters of dogmatism in school politics is this: They propose it is not so much religion that is needed in education; not the contents of ecclesiastical doctrines, but to give to morality a foundation; to give it what science calls the sanction of ethical rules. . . . From this standpoint, every attempt that is liable to weaken the ethics of religious sanction must appear equivalent to the attempt of abolishing criminal law and penal institutes, and to deliver the peaceful citizens into the hands of murderers and robbers."

Professor Jodl continues:

"The nature of religious sanction consists in this: that the moral rules are conceived as the behests of an all-powerful, omniscient being, that promises to immortal man for their fulfilment, eternal rewards, and for their non-fulfilment eternal punishment in the life beyond."

In opposition to this view Professor Jodl maintains that

"Man's morality, on the one hand, has never been preserved from error by an outlook into the beyond of heaven and hell, and, on the other hand, there have never been missing those impulses that originate in the depths of human nature working in the line of moral ideas."

These impulses are, according to Professor Jodl, the purely moral sanction of conscience. And conscience is represented as, and in another place called, "the natural sanction of morality."

This view of regarding conscience as the natural sanction of morality does not appear to us as a happy expression, and it seems to us that Professor Jodl did not intend it as it might be understood. For Professor Jodl speaks in another passage of "the natural impulses of morality as having their sanction in *experience*."

If that be so, conscience would not be the ultimate authority, but conscience would have to be regulated and corrected by a rationalised experience.

If "the natural impulses of morality have their sanction in experience," the ultimate authority would be the facts represented in experience; and the facts of experience, in their totality, are nothing more or less than the whole universe with its natural laws and conceived in its cosmical order. The universe, the All, nature, or whatever you call it, is indeed an omnipotent reality which man cannot resist, and in which he can live only by adapting himself to its laws. If this ultimate authority of the natural laws be called by the religious term "God,' we shall see at once that the old dogmatic religions express a very deep truth in mythological language. The ultimate sanction of morality is not our conscience, but that omnipotent power which resides in the objective world of realities, in the cosmical order of the universe.

We might as well say that everybody shall regard his watch as the ultimate standard of time as to make his conscience the criterion of morality. May everybody use his watch wisely and regulate it well. And so may everybody revise his

conscience and investigate diligently whether it agrees with the laws of that all-power of which we are a small part and through which alone we exist.

Professor Jodl praises very highly the French institution of a so-called purely moral instruction in the public schools. Father H. Gruber, however, points out some serious shortcomings in this system of moral education, resuling from a lack of principle. (See *Stimmen aus Maria-Laach*, Freiburg i. B., 1892, No. 4.)

It is apparent that moral commands cannot be based upon purely subjective notions or ideals, they must be based upon some objective authority which is a power that enforces obedience. Such a power exists. It is the world in which we live. It is that All-being of which we are a part. And that feature of nature which enforces that conduct which we call moral is named God in the terminology of religious language.

A consideration like this points out the way to a reconciliation between science and religion. There is a truth in the old religions, and this truth need only be purified from the errors that cluster about it, hiding its grandeur, beauty, and importance. Let the church and its authorities recognise science and the principle of free investigation; let them be ready to accept the scientific methods of research; let them be willing to accept truth as it can be proved by arguments and verified by experience as well as by experiments; and we need no longer worry about dogmatism and the narrowness of their sectarian doctrines. All these accidental features of religion will, then, pass away, and we shall have a religion which the scientist and the philosopher can embrace.

This is what we call the Religion of Science; and the Religion of Science is bound to be the religion of the future. The Religion of Science will not abolish the religions of the past, but it will develop them, broaden them, perfect them, into the cosmical religion of humanitarianism.

To teach an ethics that either has no sanction, or whose sanction is built upon the diverging opinions of individuals, will not do. Ethics must be based upon the sanction of some objective authority, and the recognition of an objective authority, of a power which enforces a certain kind of conduct, being religion, we say that no ethics can be without a religious basis.

The problem at present is not how to teach irreligious ethics—all such attempts are failures at the start; but to change the mythology of the old religions into a clear, scientific conception of the natural conditions which demand of man that he should observe those rules which we are wont to call moral. P. C.

THE FUTURE POSITION OF LOGICAL THEORY.

In last October's number of *The Monist*, Professor John Dewey gives a sketch of what in his view is "the present position of logical theory." According to this the basis of the position seems to be that "the only possible thought is the reflection of the significance of fact," and that therefore logic, which is the science of the laws of thought, rests in reality on an objective basis. He supports Hegel in de-

nying "the existence of any faculty of thought which is other than the expression of fact itself." Now it is doubtless the case that this is the position at present taken up by a large number of logicians, but as this position seems to me to be fundamentally erroneous I should like to put before your readers what I hope will be "the future position of logical theory." I have elsewhere worked out in some detail a theory of reasoning which differs from that commonly accepted chiefly in this, that it recognises not two, but three kinds of reasoning, which I call Objective, Subjective, and Symbolic. Reasoning is commonly divided into two branches, denoted by various pairs of terms, such as Objective and Subjective, Inductive and Deductive, Empirical and Formal. The lines of division indicated by these various pairs of terms are not quite identical; but they none of them indicate what seems to me the most important distinction of all, namely that between real, and symbolic argument. There *does* exist (I will not say a "faculty of thought," but) a method of argument which "is other than the expression of fact itself," whether of objective or of subjective fact. The term "formal reasoning" is indeed often used to denote this kind of argument, but this is a bad name to give it, since it seems to imply, and frequently is held to imply, that it deals with the *forms* of objective or subjective facts, whereas in reality it deals only with symbols, which are arbitrarily defined, and which do not necessarily correspond to any things whatever, whether objective or subjective. That this kind of argument not only exists, but flourishes is evident as soon as it is grasped that pure mathematics is nothing but a branch of symbolic logic. It may be that there exists somewhere a fact of which any conceivable mathematical formula might be regarded as the reflexion, but it must surely be evident that it was not to the reflexion of such facts that mathematical formulæ in general owe their existence or validity. It may perhaps be true "that fact, reality is significant," and even that thoughts are themselves such significant realities, but it is the thoughts that are given to us first, or rather sensations which are the elements of thoughts, and we can only infer the realities from them, and not *vice versa*.

The essence of my theory of logic may be briefly stated thus. The meaning of a logical term contains two parts, its denotation and its connotation. Either of these parts may be laid down arbitrarily as its *definition*, leaving the other part which I call its *import* to be found out by experience. To understand both parts of the meaning of any term is therefore to possess real knowledge. Pure symbolic reasoning deals only with the definitions of terms, and is not therefore founded on real knowledge, nor can it alone ever lead to real knowledge. Thus if in any proposition the definitions of the terms are deducible from one another, the proposition may be proved symbolically and is what I call a truism: it gives no real information. But if the definitions of the terms are independent of each other, and yet not inconsistent, the proposition can only be intended to assert the identity of the imports of the terms; it therefore ascribes import to the terms and gives real information, whether true or false. If any terms in a symbolic argument are however

known to have real import, it may be ascribed to them in real propositions, and any conclusions of the argument which contain only such terms will *ipso facto* be made to yield real information, which may be new in the sense that it was not before recognised, though it was of course implied in the real assertion or assertions which ascribed import to the terms of the symbolic argument.

It is in this way possible to separate any science into two branches, one of which consists purely of symbolic argument founded on definitions alone, while the other may be expressed in a series of propositions, the definitions of whose terms are independent of each other, and which ascribe real import (whether objective or subjective) to the terms of the symbolic science, or some of them.

This is as far as pure logic can go. The question how the truth of any real propositions comes to be known is not, in my opinion, any part of logical theory, but belongs to metaphysics. However that is no reason for not discussing it here, especially as it is the chief question discussed in Professor Dewey's paper.

"Truth" means some sort of consistency in a proposition. We may compare a symbolic argument to a game with counters, the rules of which are laid down arbitrarily, and to say that a given conclusion of such an argument is true only means that the game has been "played fair." But the truth of a real proposition does not depend on any arbitrary rules. It expresses a consistency between two real facts, either that two named groups of things possess certain common attributes, or that certain of the things possessing named groups of attributes are identical. The essential element of all real knowledge is then a connecting link between a thing and an attribute, such as is afforded by a well-understood word.

Now the only "things" which we can apprehend directly are our subjective sensations and conceptions. We can compare two or more sensations or conceptions, and recognise in them common attributes. Thus I can say of my own knowledge that the sensations I denote by "the taste of sugar" and "the taste of lead acetate" have a common attribute, which I call "sweetness." This is a real assertion, for its truth is not deducible from the definitions of its terms, and yet I know, by direct apprehension, that it is true. But it is only a subjective truth. The corresponding objective assertion would be sugar and acetate of lead both produce, when tasted, the sensation of sweetness. And I have no direct apprehension of this fact. That the tastes referred to in the former proposition were produced by objective things denoted by the terms sugar and acetate of lead, can only be inferred by the process called induction, which can never lead to a positive or necessary truth.

Thus we may from a pure symbolic science proceed one step further, to a subjective science, by the aid of direct apprehension, and the results of such a subjective science may in certain cases attain the position of absolute, or necessary truths. But on the other hand, all objective sciences must rest on induction. Now the true nature of induction is, I am persuaded, commonly misapprehended, because it is not realised sufficiently clearly that the prime data of induction are not them-

selves objective, but subjective facts. An "objective fact" is really only an hypothesis, postulated to account for certain of our subjective sensations. The only justification for making such an hypothesis is that it actually does explain certain sensations, and the measure of its probability (for we can never assert it as a necessary certainty) is the number and complexity of the sensations which it accounts for. The first of all such objective hypotheses is that we have an objective environment to whose action our sensations, or some of them, are due. This suggests at once a more general hypothesis, commonly known as the law of causation namely that the conditions obtaining in the objective universe at any one moment are the effective causes of those obtaining at the next, and so at any subsequent moment. These two hypotheses, together with certain subsidiary ones, do suffice to account for an enormous number, if not all, of our sensations, and so we are justified in entertaining them. But to leave out the notion of *effective* causation, and to substitute a mere rule of sequence, is to remove the only justification we have for assuming the hypothesis of causation at all. It is perhaps conceivable that the hypothesis may be false, that our sensations are not "caused by" an objective environment but if so what reason remains for believing in that environment at all? I can never know anything whatever about an objective universe, unless some of my sensations about which alone I know anything directly, are caused by that universe. It is perhaps thinkable that there should be an objective universe in which events occur which in no sense *cause* my subjective sensations, but to which those sensations nevertheless happen to correspond; but if this is so the sensations afford me no ground whatever for believing in the occurrence of the events, or the objectivity of the universe.

Well then, the essence of induction is the assumption of an hypothesis to account for observed facts—first of all of directly observed sensations, and then of facts assumed to be objective in virtue of the primary hypothesis. That this account of induction is the true one is I think particularly enforced by the consideration of those cases to which at first sight it does not seem to apply. A common example of induction is afforded by our belief that the sun will rise to-morrow. That it has risen every morning for the last four thousand years or more is no reason whatever for believing that it will rise to-morrow, unless it is held to point to some explanatory hypothesis. Such an hypothesis has actually been framed by astronomers, and no one would now pretend to found his belief in the sun's rising to-morrow on the mere fact that it has often risen before, but would go on to explain that it must rise unless the earth were to stop revolving, etc. If at Monte Carlo the red turned up ten times running, would that be any reason for expecting it to turn up again, the eleventh time? No, it would not unless the succession of reds seemed to point to some explanatory hypothesis, such as a defect in the roulette. Again, the fact that in the last fifty years the death rate in London has been about twenty-eight per thousand would be no reason for believing that it will be about that figure this year

except on the assumption that the constancy of the death rate indicated certain constant causes, which we have no reason to believe have been altered this year.

Having once assumed that our environment is objective, and as a corollary the hypothesis of causation, the whole of physical science follows, step by step. Subsidiary hypotheses are introduced at each stage and justified by the way they account for observed results. To show how a single hypothesis is capable of explaining a large number of observed results, the full meaning of the hypothesis is elucidated by symbolic reasoning. By such reasoning it is for example shown that the same hypothesis, of universal gravitation, is capable of accounting, not only for the movements of the stars, but for the tides, the flow of rivers, the falling of unsupported bodies, the rising of baloons, the movements of the balance in Cavendish's experiment, and so on. That such wide extensions of an hypothesis are possible tends greatly to confirm, not only the hypothesis itself, but the fundamental hypotheses of objectivity and causation also. But it does not prove either the one or the others. We cannot know anything about the objective universe with absolute certainty, but we may reasonably believe a certain hypothesis about it with any degree of conviction we think suitable; that is we may (and of course we actually do) act on all occasions *as if* we knew absolutely that they were true.

We may then believe, and I for one do believe, not only in the objectivity of the universe, but that even my own subjective sensations are mere bye-products of that universe. I *believe* that objective facts are, if I may so express it, more real than subjective sensations; that in fact the objective universe might have existed, and might exist again without any subjective element in it anywhere. But I cannot *know* this, it is with me a matter of faith. Thus I cannot agree with Hegel, that "all possible thought is the reflexion of the significance of fact" (except perhaps in the sense that thought is the reflexion of the significance of certain changes in the grey matter of the brain) for this would seem to imply that stupid or contradictory thoughts reflected stupid or contradictory significance in certain facts. But I believe that men of science are gradually evolving a system of thought which will more and more faithfully reflect the significance of fact, and that thus science is actually building up truth. But all science must begin with, and be founded upon, subjective knowledge, and therefore any theory of positivism contradicts itself for it must be founded on faith. Science is thus founded on faith, faith in things not directly apprehended, just as truly as religion is. It is only because we unconsciously acquire this faith in our infancy, and that it is in most cases amply justified by subsequent experience, that we do not even recognise the fact that it is faith, in exactly the same sense that belief in God is. But just as men have sometimes lost their faith in God, so it may happen to a man to loose his faith in reality, and logic is quite as incapable of shaking a man out of the one position as out of the other.

This I take it is the key to the agnosticism of such men of science as Mr. Huxley. I do not for a moment suppose that Mr. Huxley believes less than most men; he probably has good grounds for believing a great deal more. Only he

rightly refuses to say that he *knows* facts of which he can have had no direct apprehension and which he can only infer more or less probably, to be true. Hypotheses which as we push our investigations are shown to be capable of explaining more and more facts, that is, ultimately, more and more sensations, will in the end come to be believed in without doubt or hesitation. If a man says he *knows* the law of gravitation to be trne, he commits a logical blunder; but there is nothing to prevent a scientific man from believing in any miracle or prodigy, so long as the account he gives of it does not contradict itself. Not only may two equally reasonable men form very different estimates of the probability of the same event, even with the same evidence before them, but one man may put his faith to a proposition with admittedly much lower degree of probability than would be required to convince another. Only, a scientific man will always distinguish between what he knows and what he believes, and will admit that though he has made up his mind to act *as if* he knew to be true the propositions he only believes to be so, yet another man may reasonably take a different view of any one of them.

Trin. Coll., Cambridge, Jan. 8, 1892. EDWARD T. DIXON.

COMTE AND TURGOT.

On page 410 of the last number of *The Monist*, it was stated that the doctrine of the three stages of knowledge was not properly a Comtean idea but belonged to Turgot. The following letter from Professor Schaarschmidt of Bonn informs us of the passages in Turgot where the statement of the doctrine is found:

To the Editor of The Monist:

To your note of inquiry of the 22d of last month I have the honor to reply, that the Comtean theory of the *trois états* may be traced back to utterances of Turgot made by him in his *Second discours sur les progrès successifs de l'esprit humain prononcé le 2me décembre 1750*—namely in the Sorbonne. You will find the discourse referred to in the edition of the works of Turgot which I now have before me, namely that of Guillaumin, Paris, 1844, in Vol. II, at pages 597 et seqq. The passage in question is found at p. 600-601. However, it is highly probable that the so-called *loi des trois états* was *directly* transmitted to Comte by St. Simon, who reproduced the idea of Turgot in his *Introduction aux travaux scientifiques du XIXme Siècle*, at pages 62-63. For Comte was dependent in many respects on St. Simon, while it is probable that he had never studied Turgot. To St. Simon, in fact, is due the expression "philosophie positive," as well as the germ-notion of the division of the Sciences, which Comte further elaborated.

SCHAARSCHMIDT.

BOOK REVIEWS.

DARWIN AND AFTER DARWIN. I. THE DARWINIAN THEORY. By *George John Romanes*, M. A., LL. D., F. R. S. London: Longmans, Green & Co. Chicago: The Open Court Publishing Co. 1892.

In the present work by Professor Romanes, who may be regarded as the special exponent of Darwin's theory of organic evolution, we have a complete and systematic presentation of "Darwinism according to Darwin." It is the outcome of a course of lectures delivered by the author in 1889 before the Royal Institution, London, and forms only part of a much more extensive treatise on the Darwinian theory, embracing the early history of biology, and a discussion of the further developments of the theory subsequent to the death of the great naturalist who gave it birth. The present part is limited to what is distinctly Darwinian, dealing with it and with the main objections raised against the general theory of organic evolution it enforces.

The subject naturally divides into two parts, and Professor Romanes accordingly deals with it in two sections, in the first of which he considers organic evolution as a fact, stating the main evidences in support of the doctrine, while in the second section he furnishes "the evidences which thus far have been brought to light touching the causes of organic evolution considered as a process." The author points out in his introductory remarks, that in order to establish a theory of a continuous transmutation of species, which is what is meant by organic evolution, it is not necessary to furnish proof of *all* the natural causes which have been at work The issue is between the theory of a supernatural cause, as operating immediately in numberless acts of special creation, and the theory of "natural causes as a whole whether these happen, or do not happen, to have been hitherto discovered." Moreover, the discussion is concerned only with the origin of species, and not with that of life, as to which the author says with truth, "although in the opinion of most biologists it is a question which we may well hope will some day fall within the range of science to answer, at present, it must be confessed, science is not in a position to furnish so much as any suggestion upon the subject; and therefore our wisdom as men of science is frankly to acknowledge that such is the case."

The idea of evolution implies continuity, and the author refers to the fact that the uniformity of nature's method in the production of phenomena to which continuity is due, recognised in other fields of science, strongly recommended the theory of organic evolution for acceptance on merely antecedent grounds. There is another important fact, from the antecedent point of view, to which Professor Romanes draws attention. He states it in the words of Mr. Wallace, who lays down as a general law that "every species has come into existence coincident both in space and time with a pre-existing and closely allied species." This is a necessary consequence of natural evolution, but no reason can be assigned for it on the theory of special creation, and the existence of such a correlation may be regarded as a test-question between the two theories.

The direct evidence in favor of organic evolution brought together in the first section of the present work is considered under the several heads of classification, Morphology, Embryology, Palæontology, and Geographical Distribution. As to the first of these subjects, the object of classification has been the arranging of organisms in accordance with their natural affinities. Organisms have been compared for the purpose of ascertaining which of the constituent organs are of the most invariable occurrence, and therefore of the most typical significance, and the author shows that "all the general principles and particular facts appertaining to the natural classification of plants and animals, are precisely what they ought to be according to the theory of genetic descent; while no one of them is such as might be —and indeed, used to be—expected upon the theory of special creation." In connection with the important subject of Morphology, the author, after showing that the theory of descent with continued adaptive modification fully explains all the known cases of divergence from the typical structure which an organism presents, devotes himself especially to the argument from rudimentary structures. These are of such general occurrence that they are found in every species, and such obsolescent or vestigial structures, as the author terms them, are of great value as evidence for the theory of evolution, particularly those found in adult man. To human vestigial structures the author pays particular attention, his observations being accompanied by excellent illustrations from nature. It is noteworthy that he abandons the flattening of the tibia in man, and the disposition of valves in human veins, as arguments in support of man's natural origin, which is abundantly supported, however, by reference to other rudimentary organs.

The science of Embryology is of special importance, on account of the history it affords of the *process* of evolution, and thus supplying evidence of the fact, although the author remarks, "the foreshortening of developmental history which takes place in the individual lifetime may be expected often to take place, not only in the way of condensation, but also in the way of excision." To understand the argument from embryology it is necessary to trace the first beginning of individual life in the ovum, and for this purpose to consider the phenomena of reproduction in their most simple form. In connection with this subject, Professor Romanes,

after examining the features in which the cell-division of protozoa differs from that of metazoa, and after considering the grounds on which it may be concluded that there is a physiological continuity between growth and sexual reproduction, points out that the constructive argument in favor of evolution derived from embryology commences with the fertilisation of the metazoal ovum. As this first stage has not been adequately treated by any other writer, the author deals with it at considerable length. The later stages of individual development, including that of the vertebrata, on the lines of Haeckel's ideal primitive vertebrate, are more concisely treated. The science of embryology, covers the whole field of animal life, and it is not surprising therefore that it is considered by the author and other evolutionists as furnishing the strongest support to the theory of evolution.

As to the palæontological evidence, Professor Romanes does not ascribe to it the paramount importance which it has in popular judgment. Nevertheless he asserts that, not only is no positive proof against the theory of descent to be drawn from a study of palæontology, but it proves two very important general facts in favor of it. These are that from the earliest to the latest times there has been a constant and progressive increase in the diversity of types both of animals and plants, and that "through all these branching lines of ever-multiplying types, from the first appearance of each of them to their latest known conditions, there is overwhelming evidence of one great law of organic nature—the law of gradual advance from the general to the special, from the low to the high, from the simple to the complex." These general facts are supported by detailed consideration of fossil horns, bones, teeth and shells, which supply four special lines of evidence. The evolution of mammalian limbs with particular reference to the hoofed animals is treated with a fulness its importance requires.

As the geological argument is concerned with the distribution of species in time, so that based on the present geographical distribution of animal and plant species is concerned with their distribution in space. This, although not regarded by the author as a crucial test between the rival theories of creation and evolution, is declared to be one of the strongest lines of evidence in favor of the latter. The general facts relied on are, the discontinuity of distribution of certain species, the absence of any *constant* correlation between habitats and animals or plants suited to live upon them, and the presence in every biological region of species related to other species in genera, and usually also genera related to other genera in families; this correlation between a geographically restricted habitat and the affinities of its fauna and flora being repeated over and over again throughout the earth's surface. But further, the correlation between habitats and their animals and plants is not limited to the now existing species, that is, the dead and living species are allied, showing that the latter are modified descendants of the former. Moreover, where the areas of distribution are not restricted, through species wandering away from their native homes, the course of their wanderings is marked by the origination *en route* of new species. Another important consideration is that a double correlation

exists in the geographical distribution of organic types. That between the geographical restriction and natural affinity among inhabitants of the same areas has already been mentioned. The second is the correlation between *degrees* of geographical restriction and *degrees* of natural affinity. This is consonant with the theory of descent with modification, as "the more distant the affinity, and therefore, *ex hypothesi*, the larger and the older the original group of organisms, the greater must be the chance of dispersal." These general considerations are supported by detailed illustrations drawn from the distribution of aquatic and terrestrial organisms. The author shows that an examination of the faunas and floras of oceanic islands establishes the general law "that *wherever* there is evidence of land-areas having been for a long time separated from other land-areas, there we meet with a more or less extraordinary profusion of unique species, often running up into unique genera." There is, moreover, a constant correlation between the *degree* of this peculiarity, and the time during which the fauna and flora have been isolated. The author concludes this part of his argument by the forcible observation that "if the doctrine of special creation is taken to be true, then it must be further taken that the one and only principle which has been consistently followed in the geographical disposition of species, is that of so depositing them as to make it everywhere appear that they were not thus deposited at all, but came into existence where they now occur by way of genetic descent with perpetual migration and correlative modification."

The second part of this work, that which treats of selection, under the two heads of Natural Selection and Sexual Selection, although in some respects the most important, does not need to be noticed so fully as that which deals with the facts of natural evolution. After stating the theory of natural selection, the author notices various fallacies connected with it which are largely prevalent among the adherents of Darwinianism, although nowhere fallen into by Darwin himself, and the still greater fallacies found in the writings of his opponents. In the two following chapters Professor Romanes, after stating the main arguments in favor of the theory of natural selection, reviews the main objections which have been urged against it. The first argument is that, as a matter of observation, "the struggle for existence in nature does lead to the extermination of forms less fitted for the struggle, and thus makes room for forms more fitted." The second argument, which the author considers of overwhelming significance, is that there is not a single instance, in either the vegetable or the animal kingdom, of a structure or an instinct which is developed for the exclusive benefit of another species. Its importance may be judged by the fact that Darwin considered that a single instance to the contrary would invalidate the whole theory of natural selection. The third argument is based on the facts connected with the variation of animals and plants under domestication. Ocular evidence of the value of this argument is furnished by a series of drawings prepared for the present work representing varieties of pigeons, and of eight other animals. As special illustrations of natural selection the author considers the subjects of protective colouring, warning colours, and mimicry. In referring to his

treatment of the criticisms of the natural selection theory, in the course of which he deals with the main objections, we cannot do more than mention that based on the possession by the skate of an electric organ, which, owing to the weakness of its discharges, cannot apparently be of any use to the animal. This difficulty seems to be unexplainable according to the principles of natural selection, and Professor Romanes, in admitting the fact, remarks that it is of a magnitude and importance "altogether unequalled by that of any other single case—or any series of cases—which has hitherto been encountered by the theory."

The last chapter of the work is devoted to the consideration of the theory of Sexual Selection, which was suggested by Mr. Darwin to furnish a scientific explanation of the wide generality of beauty in organic structures. It is an observed fact that sexual selection does take place among the higher animals, and it is inferred that, the selection has reference to an æsthetic taste on the part of the animals themselves; and that this cause is adequate to explain the phenomena of beauty presented by such animals. After stating the evidence in favor of these conclusions, the author considers at length Mr. Wallace's views on the subject. These constitute the objections urged against the theory of sexual selection, of the truth of which, however, Darwin shortly before his death expressed himself as remaining firmly convinced.

Professor Romanes concludes his present volume with a few general remarks on the philosophical relations of Darwinism to the facts of adaptation on the one hand and to those of beauty on the other. In none of these, says the author, do we meet with any independent evidence of supernatural design, although there is abundant evidence throughout organic nature of natural causation. And yet natural causation furnishes no disproof of the existence of a Supreme Being. The whole of organic and inorganic nature is made subject to one rule of government, but "the ulterior and ultimate question touching the nature of this government as mental or non-mental, personal or impersonal, remains exactly where it was." Moreover, if there be an intelligent First Cause, of whose Will all secondary causes are the expression, their operation must be uniform, so far as the Will is consistent, and therefore it must appear as what we call mechanical. Thus according to the pure logic of the matter, "the proof of organic evolution amounts to nothing more than the proof of a natural process."

In an appendix to Chapter V, Professor Romanes offers suggestions as to the imperfection of the geological record, and meets various objections against the theory of organic evolution on that ground. But we must now leave this excellent work, which will undoubtedly answer the expectation with which it was prepared, of being "a compendium, or hand-book, adapted to the requirements of a general reader or biological student, as distinguished from those of a professed naturalist."

It is enriched by a very good portrait of Darwin, in whose footsteps the author has sought to tread by "avoiding dogmatism on the one hand, and undue timidity as regards general reasoning on the other." In his introductory observations he

dwells on the remarkable influence exercised by Darwin over the method of investigation of organic nature, by treating the discovery or accumulation of facts, not as an end, but as a means for generalisation, thus bringing natural history into a line with other inductive sciences.

The value of the work is materially increased by the addition of numerous well executed original illustrations, besides various plates derived from Haeckel's works and other sources, some of them American. It has also a good Index which will add much to its usefulness. Ω.

GRUNDRISS DER NATURLEHRE FÜR DIE OBEREN CLASSEN DER MITTELSCHULEN. Von Dr. *E. Mach*. Ausgabe für Gymnasien. Mit 358 Abbildungen. 315 pp Vienna and Prague: F. Tempsky. Leipsic: G. Freytag.

The principles that have guided Professor Mach in the preparation of these outlines of Physics, are in the main as follows:

The concepts and notions of physical science should not be set forth dogmatically, but should be presented as much as possible under the influence of the actual natural facts that lead to them. Hypotheses and theories should be employed only when actually necessary. Long mathematical developments and pages of formulae only impede the scholar's total view of his subject and afford of themselves no insight. *Logical* finish should not be sought after in elementary presentations; the method of the inculcation of truths should, so to speak, be *psychological:* the method of their acquisition.

From the brief statement of these guiding principles, the reader will observe that Professor Mach's conception of the proper form of an elementary text-book, differs greatly from that usually entertained. The method of presentation is not the dogmatic, the "logical," which sets forth a science as a ready-made and perfected, mystically created, product; but the genetic, the historical, the natural. We are constantly made aware, in the study of this book, of what knowledge really means and what it does not. We are not treated, in its introductory chapter, as we are in most of the text-books of Physics, to disquisitions on the insolubility of the questions What is Matter, What is Energy, What is Force, and to like professions of metaphysical ignorance, which make us wonder how people can request us to read hundreds of pages about things it is impossible to have knowledge of; but we are presented throughout with a simple statement and description, in terms of facts, of what our fundamental, as well as our derived, notions *are*, and what their import. It is unnecessary to say that the need of such a book is very great. And it is pleasant, constantly to discover how well its idea has been executed. Concise, unburdened by unnecessary and self-evident developments, it is in our judgment a model of elementary exposition.

With characteristic modesty, Professor Mach disclaims all pretension to having fully realised his conception, and views his performance simply as an attempt. The book was submitted, before publication, to a number of competent educators, whose advice in regard to alterations was frequently acted upon. μκρκ.

Nouvelles Recherches de Psychiatrie et D'Anthropologie Criminelle. By *C. Lombroso*. Paris: Felix Alcan. 1892.

Prof. C. Lombroso's activity reaches a climax that is almost superhuman. He contributed to the Italian Archives of Psychiatry two articles, one of which proves that, at least in Italy, the sense of touch is weaker in women than in men; it is still weaker and more irregular in criminal women than in normal women. (Archiv. di. Psichiatr. Sc. pen. ed. Antrop. Vol. XII, 1891, p. 1–6). The other article (l. c. p. 58–108) is an inquiry concerning thought-transmission, which contains besides a critical review of the usual rubbish of so-called telepathic phenomena two strange observations. The first is the case of a low-bred hysterical lad who does not possess the faculty claimed by him to understand telepathically the intentions of whosoever employs him, but strange enough, if sufficiently charged with whiskey, is able to read any writing through the envelope with closed eyes. The other case is a somnambulistic compositor, who sets type correctly in the state of somnambulism. Blindfolded he draws the figures drawn behind his back upon a slate, and hypnotised he guesses the numbers which the experimenter thinks. Lombroso is one of our greatest psychologists, but these experiments perhaps with the same subjects should be repeated by other psychologists so as to make sure of their correctness. Lombroso concludes that there seems to be some foundation in thought-transmission.

The present little volume of new researches applies Lombroso's theories concerning morphological abnormalities of the criminal type in the anthropological field. It appears natural that the criminal type should show abnormal features, but sometimes Lombroso's eagerness to discover abnormal features, even in political criminals such as Charlotte Corday, is exaggerated. At least we must confess that many abnormalities appear very frequently among peaceful and law-abiding citizens. The Corday skull, although a trifle platycephalic, is beautifully rounded and normal. M. Topinard finds no abnormal features but Lombroso maintains that its platycephaly is doubly abnormal and he adds: "The capacity of the skull is 1.360 cubic "centimeters while those of Parisian women is 1.337. Must we not conclude that its "capacity exceeds the average?" We read on p. 124 and sq: "The more our "women will be forced to enter the economical struggle for existence, the more "will they become criminals. . . . The result (of letting them enter public life) will "be to lower the nature of women."

The booklet is very instructive even to those who disagree with the professor, for it is full of facts and valuable observations. *κρς.*

Vorlesungen über die Algebra der Logik. (Exakte Logik.) By Dr. *Ernst Schröder*. Erster Band mit viel Figuren im Texte. Leipsic: B. G. Teubner. 1890.

Professor Mach says, "The essence of science is economy of thought." If that is so, there is no discipline more imbued with the spirit of science than algebra. When operating with algebraic symbols we cease to think out the whole calculation

at every stage, and we are enabled to keep track of the different factors, and of their mutual relations during the operation from the beginning to the end. In common arithmetic these factors are lost like rivers in an ocean of homogeneous numbers which increase and decrease without betraying the way by which they were reached. Algebraic symbols generalise calculation, and thus we have the advantage of calculating from the resultant formula any particular example with machine-like exactness and without the trouble of going over the whole operation again. The ease with which we can operate with symbols brings it about that we sometimes out-run our thought and the correct result may be obtained by an operator who only partially understands the operation, just as an engineer is able to run a machine the mechanism of which he but partially understands.

Mathematics having gained so great advantages through the introduction of algebraic symbols, the question suggests itself whether the same method might not with some advantage be introduced into the other provinces of formal science, especially in the domain of logic. The first logicians who borrowed signs from algebra and introduced them into logic by generalising their meanings, were two Germans, Gottfried Ploucquet and Johann Heinrich Lambert. Ploucquet wrote "Principia de substantiis et phaemonenis, accedit methodus calculandi in logicis ab ipso inventa, cui praemittitur commentatio de arte characteristica universali," Frankfort and Leipsic, 1753, ed. II. 1764.* Lambert's investigations on the subject are found in his "Logische Abhandlungen." Prof. Venn, in his "Symbolic Logic." p. xxxii. says of Lambert, "He fully recognised that the four algebraic operations of addition, subtraction, multiplication, and division, have each an analogue in Logic; that they may here be respectively termed aggregation, separation, determination, abstraction, and be symbolised by $+$, $-$, $\times$, $:$. He also perceived the *inverse* nature of the second and fourth as compared with the first and third; and no one could state more clearly that we must not confound the mathematical with the logical signification."

The algebra of logic which through the work of these ingenious men, had received so favorable a start, was very soon neglected; yet it was revived after some time in England by Boole, DeMorgan, and Jevons. It remained for quite a while the almost exclusive property of the English where at the present time Prof. Venn may be considered as the greatest English authority on the subject. Venn's works were rivalled by an American scholar, Mr. Charles S. Peirce, the same who has contributed several articles to *The Monist*. The algebra of logic which had been so long neglected in Germany, is now reviving in the country of its first birth. The author of the work, the first volume of which lies now before us for review, is Professor of Mathematics at the Polytechnicum of Karlsruhe in Baden. The second volume is not yet worked out in detail, but its publication may be expected in one or

* See Aug. Friedr. Böck. *Sammlung von Schriften, welche den logischen Calcul des Prof. Pl. betreffen,*" Frankfort and Leipsic, 1766.

two years. The whole work, when completed, will be the most comprehensive treatise on the algebra of logic that has as yet appeared. The plan and treatment of Professor Schröder's "Vorlesungen über die Algebra der Logik" exhibit that uncommon thoroughness and exhaustiveness, for which German scholars are justly famous. The book, in one word, will be the standard work on the algebra of logic for a long time to come.

It would lead us here too far to review or to sketch the main contents of Professor Schröder's work, which, it seems to us, is difficult to explain without entering into the details and thus going beyond the scope of mere review. But we shall briefly set forth the chief foundations upon which Schröder builds his algebra of logic. Professor Schröder has inscribed two mottos on the title page of his book, but we confess that we suspect at least one of them is intended to be ironical; it certainly seems to have been selected when the author was in a mood of humor. Being conscious of the great value of theoretical speculation, he quotes from Goethe the following Mephistophelian sentiment:

> "I say to thee, a speculative wight
> Is like a beast on moorlands lean,
> Led circling there by some malicious sprite
> While all around lie pastures fair and green."

There are two kinds of speculation: first, that which attempts to find out by pure thought a substantial extension of knowledge; and secondly, that which investigates the methods of inquiry. The former is futile, the latter is fruitful. The former is that which Goethe censures. To censure the latter would be a grave mistake. The man who would try to forge bread out of iron must meet with disappointment, but the smith who invented and shaped the plow did more for the production of bread than many thousand farmers taken together, although it may be he did not raise a blade of wheat. Speculation that attempts to find out things by mere brooding is *prima facie* wrong; but speculation that constructs the methods of investigation is the basis of all progress in science.

The other motto of Schröder's book is Goethe's saying: "Man is not born to solve the problem of the world, but to seek for the point where the problem begins and then to keep within the limits of the comprehensible." It would be well to compare this saying of Goethe's with another one by the same author which is "Man should hold fast to the belief that that which seems incomprehensible, is comprehensible. Otherwise, he would not investigate." Schröder follows rather the spirit of the second than that of the first quotation. He says on p. 105 of the recent volume. with reference to some critical remarks made by the late Professor Lotze of Göttingen, who was more brilliant and ingenious than exact in his philosophical views and who showed an undisguised dislike for any severe method that has recourse to numbers, figures, schedules, or classifications, as does the algebra of logic: "If Lotze concludes his logic with the wish that German philosophy should "rise to the attempt at comprehending the course of the world instead of merely

"calculating it, we should answer, Could we first calculate it, then we should cer-
"tainly comprehend it so far as comprehension on earth is possible." But how is it possible? Simply by properly limiting and defining the field of investigation; and here we can see that the first saying of Goethe's should not be construed in such a way as to appear contradictory to the second.

Every thinker starts with certain limits of comprehension, but he extends them so that the stock of knowledge increases in every generation, and there is no probability that we shall ever reach the limits of an absolutely incomprehensible. There is no solid progress to be made by making wild raids in the domain of the unknown, a method which is pursued only by dreamers and metaphysicians. We must start from the boundary of the present stock of knowledge, and let our progress be confined to single well defined and limited problems. How a solution of the world-problem is possible in this sense, is explained by Schröder on p. 103: "The answer is given in the old parable of the bundle of arrows, which resists all "attempts at breaking it. As a whole it withstood, but it yielded to him who un-
"tied the bundle and broke the arrows singly. The difficulties which present them-
"selves to the progress of knowledge can also only be overcome singly, and in their "one-sidedness. In the division of labor thus produced, lies exactly the advantage "and the strength of the diverse disciplines,—*qui trop embrasse, mal étreint.*"

Professor Schröder advertises his book with the following words:

"From the title the reader will observe that here the deductive or formal logic "alone, is treated. The calculative treatment of the deductive logic, through "which this discipline is redeemed from the fetters by which through the power of "habit, word-language has bound the human mind, should deserve, more than any-
"thing else the name 'Exact Logic'! This method alone can give to the laws of "valid inference, their most pregnant, concise, and clear expression, and is thus en-
"abled to reveal numerous and important gaps,—why not mistakes,—in the older "presentations of the subject."

"Since the appearance of the author's 'Operationskreis des Logikkalkuls,' "this method of treatment has made progress of highest importance, especially "through the works of the Americans, Mr. Charles S. Peirce and his school. To "Mr. Peirce, more than to anybody else, is due the merit of having built a bridge "from the older and purely verbal treatment of our discipline to the new calcula-
"tive method; a bridge which the professional philosophers rightly found lacking "and to which lack is well to be ascribed the fact that the new method received only "a partial and bewildered attention. Through Mr. Peirce's works, upon which "also the author has had some influence, the theory is now so far developed and "perfected that for the first and main part of its whole system, a final presenta-
"tion and arrangement may be obtained."

"Endeavoring to offer so far as possible such a final and comprehensive pre-
"sentation, the author desires to offer at the same time and in a systematic way a

"hand-book of the most valuable materials of the literature of the subject which "especially in the English language, is quite considerable."

The book addresses two kinds of readers which are of a greatly different turn of mind, and it will go far in reconciling the methods of both, the mathematicians and the philosophers.

In the preface Schröder says, "In consideration of the formulæ which ap- "pear in the book, it may be wise to state, that no mathematical training or any "specific knowledge is presupposed to be known by the reader. We might re- "peat the words of Dedekind, prefixed to one of his books: 'Everybody can un- "derstand this work who is in possession of what is generally called, common- "sense.' But we may add another saying from another author: 'The beaux esprits "certainly, who are not accustomed to the severe demands of thought, will very "soon turn away from it.'"

The introduction is comparatively long, comprising no less than 125 pages. But, considering that it is more than an introduction, that it explains the foundation on which the whole work rests, it is not too long, for it forms an essential and indeed the most important part of the book. Schröder discusses in it the character and the limitation of his problem. He explains induction, deduction, contradiction and valid inference. He considers the nature of signs and names. He says, on p. 38: "Humanity, it appears, does not rise above the absolute zero of civilisa- "tion and the level of animal life, until it develops the activity of denotation and "symbolising. And there is indeed nothing to which the human mind owes so "much for its progress as to the signs of things."

"The sign which speaks in attitude and gesture to emotion, speaks in word and "sentence to the intellect. And it possesses, in accordance with the laws of the as- "sociation of ideas, the power of producing in the person addressed certain ideas."

"While the sign coalesces with the idea, it reacts upon thought itself. Through 'signs the ideas which otherwise would remain confused and vague, are analysed "and they become as separate elements, a permanent possession over which the "thinking mind has forthwith free control. Through the sign we distinguish, we "fix differences and make them ready for new peculiar combinations. The sign, "is as it were, the handle by which we take hold of the objects of thought. Through "the sign only, the idea is liberated from the elements of sense, which are attached "to it, and is enabled to rise into the sphere of generalisation. Thus thinking is on "the one hand liberated, on the other determined by the sign.

"Further, through the sign alone which makes it possible that the same idea "the same purpose can live in many, there is *one* will, *one* soul, and a community "of human aspirations exists upon which is based the life of mankind as a life of "individuals in society. And this again is the basis of our morality and civilisa- "tion.

"The efficacy of the sign spoken is considerably increased by the invention of 'writing."

Professor Schröder discusses those two methods of logic which are known by the names: the Logic of Intension and the Logic of Extension. (*Logik des Inhaltes*, and *Logik des Umfangs*.) This leads to a discussion of definition, the categories, and conceptual writing which would find its ideal in a system of pasigraphy, or universal language, for the perfection of which an algebra of logic would be indispensable.

The symbols employed by Schröder are borrowed to a great extent from Peirce, but they are considerably improved and it is probable that Schröder's innovations will be universally accepted.

We purposely refrain here from discussing the particulars of Schröder's work, stating only in a general way that his proposition of a new symbol for subsumption, (he proposes to replace the old symbol $-<$ by $\subseteq$ to signify "equal to or subsumed under"), his treatment of the symbols 0 and 1, the former representing an absence of certain marks, or as it has been called their "incompossibility," as being excluded by the presence of other marks; the other the universe of the whole subject under discussion, and all the other problems which he separately treats in his lectures are admirably presented and command almost throughout the reader's consent. We now conclude our review with the quotation of the last paragraph of Schröder's introduction on p. 125. Having declared that "logical inquiry should not be judged from the short-sighted or narrow-minded, not to say *borné*, utilitarian standpoint," he points out the great practical importance of his science, saying:

"Similarly, as with other sciences, so logic also may be expected to realise and "produce undreamed of results, which may incidentally bring about, in a most sur- "prising way, incalculable advantages. Let me only point out one thing. Since "the impulse which this science has of late received, there have been already con- "structed three logical machines which although we grant, scarcely deserve their "name, because their efficacy remains still very rudimentary, may be compared to "Papin's pot that in a more advanced state became the steam-engine. Indeed, "nobody can presage whether after all a thinking machine might not be constructed, "which would be analogous to, but more perfect than the calculating machines. "The latter have relieved man of a considerable portion of much fatiguing thought- "work, just as the steam-engine has been successful in relieving him from physical "labor."

"To be sure we must not expect to reap while we are still sowing, and least so "in such a case as this where the harvest is to be expected from trees." *κρς*.

THE GRAMMAR OF SCIENCE. By *Karl Pearson*, M. A. With 25 figures in the text. London: Walter Scott, 24 Warwick Lane. Imported by Charles Scribner's Sons, New York.

We are greatly in sympathy with the methods and principles of Professor Karl Pearson's "Grammar of Science." The work is a comparatively popular and also brief exposition of the modern ideal of scientific inquiry. "The goal of

"science is clear—it is nothing short of the complete interpretation of the universe. "But that goal," adds the author, "is an ideal one—it marks the *direction* in "which we move and strive."

The best part of the book is in our opinion the introductory chapter which sets forth "the scope and method of science" and shows the need of a "Grammar of Science." Says the author in the summary of this chapter:

"The scope of science is to ascertain truth in every possible branch of knowl- "edge. There is no sphere of inquiry which lies outside the legitimate field of "science. To draw a distinction between the scientific and philosophical methods "is obscurantism."

The present generation is in a state of fermentation. While one man finds a restlessness, a distrust of all authority, a questioning of the basis of all social institutions and long established methods, another pictures for us a golden age in the near future. One teacher propounds what is flatly contradicted by a second. We require some guide in the determination of our actions, and not for our own private but also our public duties. "Every citizen is thrust into an appalling maze of so- "cial and educational problems; and if his tribal conscience has any stuff in it, he "feels that these problems ought not to be settled, so far as he has the power of "settling them, by his own personal interests, by his individual prospects of profit "or loss. He is called upon to form a judgment apart from his own feelings and "emotions if it possibly may be—a judgment in what he conceives to be the inter- "ests of society at large."

"How is such a judgment to be formed?" The answer is by science. Such a judgment can only be based on a clear knowledge of facts, on an appreciation of their sequence and relative significance. The judgment based upon them ought to be independent of the individual mind which examines them, and this frame of mind which is that of the scientist is an essential of good citizenship. Not as if the scientist were *eo ipso* a good citizen, but society has an interest in the propagation of the methods of modern science. Sound citizenship will be promoted by training the mind to an exact and impartial analysis of facts.

How much a grammar of science is needed can be learned from the confusion that prevails concerning the fundamental concepts of science. Says Pearson:

"Anything more hopelessly *illogical* than the statements with regard to force "and matter current in elementary text-books of science, it is difficult to imagine; "and the author, as a result of some ten years' teaching and examining, has been "forced to the conclusion that these works possess little, if any, *educational* value; "they do not encourage the growth of *logical* clearness or form any exercise in sci- "entific method."

"The views expressed in this *Grammar* on the fundamental concepts of sci- "ence, especially on those of force and matter, have formed part of the author's "teaching since he was first called upon to think how the elements of dynamical "science could be presented free from *metaphysics* to young students."

Professor Pearson calls attention to the danger that arises from two modes of thought, viz. that of the metaphysician and that of the agnostic. He says:

"The poet is a valued member of the community, for he is known to be a "poet; his value will increase as he grows to recognise the deeper insight into na- "ture with which modern science provides him. The metaphysician is a poet, "often a very great one, but fortunately he is not known to be a poet, because he "clothes his poetry in the language of apparent reason, and hence it follows that "he is liable to be a dangerous member of the community. The danger at the "present time that metaphysical dogmas may check scientific research is, perhaps, "not very great."

Fortunately the danger that arises from metaphysicism is past. "For," adds Pearson, "The day has gone by when the Hegelian philosophy threatened to "strangle infant science in Germany;—that it begins to languish at Oxford is a "proof that it is practically dead in the country of its birth. The day has gone by "when philosophical or theological dogmas of any kind can throw back, even for "generations, the progress of scientific investigation."

The scientist will, it is true, often have to confess: "There I am ignorant." But it would be absurd to restrict science to the limited field of thought which it occupies to-day. Professor Pearson continues:

"It is true that this view is not held by several leading scientists, both in this "country and Germany. They are not content with saying, 'We *are* ignorant,' but "they add, with regard to certain classes of facts, 'Mankind must *always* be ig- "norant.' Thus in England Professor Huxley has invented the term *Agnostic*, not "so much for those who are ignorant as for those who limit the possibility of "knowledge in certain fields. In Germany Professor E. du Bois-Reymond has "raised the cry: '*Ignorabimus*'—'We shall be ignorant,' and both his brother and "he have undertaken the difficult task of demonstrating that with regard to certain "problems human knowledge is impossible. We must, however, note that in these "cases we are not concerned with the limitation of the scientific method, but with "the denial of the possibility that any method whatever can lead to knowledge. "Now I venture to think that there is great danger in this cry: 'We *shall* be ig- "norant.' To cry 'We are ignorant,' is safe and healthy, but the attempt to dem- "onstrate an endless futurity of ignorance appears a modesty which approaches "despair. Conscious of the past great achievements and the present restless ac- "tivity of science, may we not do better to accept as our watchword that of Gal- "ilei: 'Who is willing to set limits to the human intellect?'—interpreting it by "what evolution has taught us of the continual growth of man's intellectual powers."

The introductory chapter presents the general plan of Professor Pearson's book. The following chapters contain the detailed work of the plan. The head- ings of these chapters are: II, The Facts of Science; III, The Scientific Law; IV, Cause and Effect—Probability; V, Space and Time; VI, The Geometry of Motion;

VII, Matter; VIII, The Laws of Motion; IX, Life; X, The Classification of the Sciences.

Professor Pearson follows Professor Ernst Mach in his expositions (especially in Chap. II) very closely, and especially refers to the latter's contributions to *The Monist*. Pearson emphasises with Mach the distinction between the conceptual and perceptual, between ideas or noumena and sensations. He rejects, as does Professor Mach, the assumption of unknowables beyond our groups of sense-impressions, saying: "It is idle to postulate shadowy unknowables behind that real "world of sense-impression in which we live" (p. 88), and yet he says in another passage on p. 134: "There is mystery enough in the chaos of sensations and in its "capacity for containing those little corners of consciousness which project their "own products, of order and law and reason, *into an unknown and unknowable* "*world.*"

It appears to us that the deeper reason of this apparent inconsistency can be traced to the author's conception of the import of knowledge. He follows Kirchhoff in the acceptance of the theory that scientific law is a brief description of facts in mental shorthand. But at the same time he follows Clifford and Mach too closely; the former in the respect that we can know the "how" only and not the "why," and the latter in overlooking the fact that concepts are symbols which stand for something and have a meaning. Pearson says on p. 145, "Science describes how they [motions] take place, but the *why* remains a mystery." But should we not, we ask, rather supplant the old and metaphysical conception of the "why" (the sense of it as here implied) by a better and more correct conception? The metaphysical "why" is not so much a mystery as it is the incorporation of an illegitimate problem. The "why" of positive science demands as answer an exhaustive description of those conditions which as the outcome of a definite transformation inevitably produce a certain phenomenon.

But here we must criticise Professor Pearson's view of "description," as well also as his view of causation. Cause and effect are to him, as they were to Mill, mere sequences; necessity belongs exclusively to the conceptual realm, and is "illogically transferred to the world of perceptions."

An exhaustive description will trace the process of causation, and whenever we succeed in this we have answered the question "why" in the only sensible meaning it possesses. Sense-impressions do *not*, as Professor Pearson expresses it, "shut us in," so that the beyond remains a mystery to us. Sense-impressions represent the beyond of reality and they represent it in such a way as to enable us to deal with it properly. This representation is knowledge and thus the world is *not* unknowable. The world is full of mystery, but knowledge itself is not mysterious. Having sense-impressions and interpreting them in our conceptual inferences we know something of the world.

We are not prepared to accept Professor Pearson's views that "change is perceptual, motion conceptual," and also that "we are not compelled to postulate a

space outside of self for phenomena" (p. 196). We should say that our concepts, the concepts motion and space included, represent certain features of reality. We might give a special name to those features of reality which are represented by the terms motion and space, but we could not deny their objective reality without at the same time denying the validity of the concepts.

Says Professor Pearson, "All things move—but only in conception" (p. 385). "What moves in conception is a geometrical ideal, and it moves because we conceive it to move." These propositions have no meaning if pronounced from our standpoint. Observe also that Professor Pearson inculcates the conceptuality of motion by unnecessarily repeating the word in the formula on page 341 which begins as follows: "Every corpuscle in the *conceptual* model of the universe must be *conceived* as moving. . . ." When we conceive something as moving we mean that not only in the conceptual model, but also in reality there is an action taking place which we represent by the concept motion. To say that we have knowledge only of changes but that we do not know whether those changes which we describe as mechanical are really motions, appears to us idle subtlety. The point is whether this method of describing those events enables us to deal with them properly. If it does it answers the purpose.

In spite of all our disagreements we feel ourselves in close contact with the author of "The Grammar of Science," for we agree with respect to the principles of science and we certainly can leave the settlement of our differences to a common test on the basis of these principles. Moreover, the attitude of the author seems to us very much like that which we take ourselves. We quote from a former publication of his, the following passage *:

"I set out from the standpoint that the mission of Freethought is no longer to "batter down old faiths; that has been long ago effectively accomplished, and I, "for one, am ready to put a railing round the ruins, that they may be preserved "from desecration and serve as a landmark. Indeed I confess to have yawned over "a recent vigorous inditement of Christianity, and I promptly disposed of my copy "to a young gentleman who was anxious that I should read a work entitled: *Nat-"ural Law in the Spiritual World*, which he told me had given quite a new width "to the faith of his childhood." κρς.

PHILOSOPHIE DER ARITHMETIK. Psychologische und logische Untersuchungen. By Dr. *E. G. Husserl.* Erster Band. Halle-Saale: C. E. M. Pfeffer. 1891.

The present volume does not pretend to be a complete system of the philosophy of arithmetic, but it attempts to prepare, in a series of psychological and logical investigations, the scientific foundation for a future construction of this disci-

* The book from which we quote, namely *The Ethic of Freethought*, like the book here under discussion, contains much detail matter in which we differ most emphatically from the author; (he is, for instance, in our opinion very unjust to Martin Luther;) but it seems to us that he pursues an aim that we have in common with him.

pline, which would be of equal value to the mathematician and philosopher. The first volume which is now before us analyses in its first part the ideas plurality, unity, and number, so far as they are directly given us and not in their indirect symbolisation. The second part considers the symbolical representations of plurality and number, and the author attempts to show that the fact of our being almost throughout limited to symbolical ideas of number determines the meaning and the purpose of that view which the author calls "Anzahlenarithmetik."

The author criticises several theories which in different ways explain the origin of plurality and unity. There is one theory which explains the origin of the unit from the unity of consciousness; there is another one which explains the origin of number from a succession in time. F. A. Lange bases his theory of number upon space-conception, and Bauman declares there is something mathematical in the external world which corresponds to the mathematical in us. The theory of difference held by Jevons, Schuppe, and Sigwart, is declared to be superior to all others, but even that is rejected by the author. Jevons says, "Number is but another name for diversity. Exact identity is unity, and with difference rises plurality. . . . Abstract number then, is the empty form of difference." Dr. Husserl objects: if numbers are all empty forms of difference, what makes the difference between two, three, four, etc.? The contents of these numbers are very different. The inability of defining this difference shows the imperfection of the theory of difference. Dr. Husserl proposes what he calls "collection" as a special method of combination by which unities are formed.

Although the book contains many valuable suggestions, it is very hard reading. The author's views are not at all clearly set forth. Neither is the table of contents so systematically arranged as to give us a clue to the plan of the book, nor is there any index that might give us assistance in finding out the most characteristic passages. The reader is supposed to read the book right through, in order to understand detached chapters or even sentences. And even then we are not sure whether or not we have understood the author's propositions the consistency of which is not as apparent as it might be expected. For, after having criticised so many attempts at explaining and analysing the ideas, plurality, unity and number, and after having proposed definitions, explanations, and analyses of his own, we find on p. 130 a passage where these ideas are incidentally declared to be incapable of definition. Speaking of Frege's theory, Dr. Husserl says, "As soon as we come down to ele-
"mentary concepts, all definition has an end. Such concepts as quality, intensity,
"place, time, etc., cannot be defined. The same is true of elementary relations,
"and of those concepts upon which they are founded. Equality, similarity, grada-
"tion, whole and part, plurality and unity, etc., are concepts which are utterly in-
"capable of a formal-logical definition. All we can do in such cases is to produce
"the concrete phenomena from which they have been abstracted, and to explain
"the method of this process of abstraction. One can, where it is necessary, ex-
"actly fence in (umgrenzen) by diverse circumscriptions, the concepts in question,

"and thus prevent confusion with kindred concepts." We must confess that we do not understand the author's idea; what is an act of defining if not an "umgrenzen," a fencing in of the concept? The book contains many similar passages, which, it seems to us, are not properly thought out by the author. But the subject is a difficult one, and, as the author says in the preface, "A work of this kind should, with regard to the difficulties of the problem it treats, be judged with leniency."

κρς.

CHRISTIANITY AND INFALLIBILITY. Both or Neither. By the Rev. *Daniel Lyons*. New York: Longmans, Green & Co., 1891. Chicago: A. C. McClurg & Co.

This little book of Dr. Lyons's is got up in a much more substantial and prepossessing form than the majority of the works that come from Catholic quarters. It contains 284 pages and is supplied with the *Nihil obstat* of a Catholic "censor deputatus" and with the *Imprimatur* of the Bishop of Denver. In this book, therefore, the reader may be sure that he possesses a correct exposition of Catholic doctrine.

The purpose of Dr. Lyons is to establish the thesis,—a thesis always insisted upon by the Catholic church,—"that Christianity, to maintain its rightful hold on "the reason and conscience of men, needs a living, infallible Witness to its truths "and principles; a living, infallible Guardian of its purity and integrity, and a liv- "ing, infallible Interpreter of its meaning." By Christianity Dr. Lyons means "that body of sacred truths which the Almighty revealed through the *ministry* of "Christ and His Apostles."

We italicise the word "ministry," for on this word hinges in our judgment the main and unmistakable argument of Dr. Lyons's advocacy. If the results of modern Biblical criticism are at all true, the "Church," so-called, must have existed before the New Testament. And in establishing the authority of the church, the Catholic theologians regard and use the Bible merely as an "historical narrative, "whose trustworthiness (at least in the parts quoted) can be proved in the same way "as that of any other history, sacred or profane." They take their argument "for "the institution, mission, and authority of the Church from the Bible as a mere "human record of the sayings and doings of our Divine Lord and His Apostles." What is the mission of the church? "*And he said unto them. Go ye into all the "world, and preach the Gospel to every creature. He that believeth and is baptised "shall be saved, but he that believeth not shall be damned.*" These are awful powers, and awful are the sanctions placed by the same Divine letter-patent in the hands of the institution that dispenses them. And in the face of the great complexity and peculiar nature of the Holy writings, in view of their recognised liability to manifold and multifarious interpretation, does not such a great and fearful commission of power as this necessarily and logically imply a concession of Infallibility—of infallibility, let us add, as *technically* understood. "Who can suppose that God would "formally commission anybody to teach in his name and command all to hear and

"accept His teaching under the severest of penalties, and at the same time not se-
"cure that teacher against the possibility of teaching error for truth? Suppose the
"Church thus commissioned by God did actually teach error, even then would not
"all (there is no exception made), by reason of the divine command, be bound to
"believe? And in that case would not God Himself be accountable for the erro-
"neous belief? I conclude, therefore, that the formal commission to teach the Gos-
"pel in God's name, and by His authority, joined to the express command to be-
"lieve carries with it a pledge of the divine assistance of Infallibility as a guarantee
"to all men that in yielding the obedience of faith, they are perfectly secure against
"all danger of error." This inference is incorporated in a dogma, a "Catholic dogma," of infallibility, which is this: "that the Pope, by virtue of a special super-
"natural assistance of the Holy Spirit of Truth promised to him, in and through
"St. Peter, is exempt from all liability to err when, in the discharge of his Apostolic
"Office of Supreme Teacher of the Universal Church, he defines or declares, in
"matters of or appertaining to Christian faith or morals, what is to believed and
"held, or what is to be rejected and condemned by the faithful throughout the
"world. This definition substantially embodies the whole Catholic teaching on the
"subject of Infallibility."

Dr. Lyons's arguments are well put and well reasoned out. He sees clearly where the vulnerable point of the present condition of the Christian churches lies,—which the majority of Protestant theologians do not see. He sees clearly, though he does not say it, that the rococo superstructure of neo-Christian dogmatism was long and long ago undermined by science and that it is now toppling in the minds of the unscientific generally; and he justly advises all who have set their hearts on the preservation of the subtle and irrelevant externalities of religion, to forsake their ancient dwelling-place and seek a safe and easy abode in the grandly simple and grandly spacious, Roman temple of Papal infallibility. That edifice is safe against the artillery of science. It has by one simple act placed itself beyond the reach of all scientific attacks. For science, or rather the *method of science*, directly owes its origin to the consciousness of our individual liability to error and the consequent aspiration of man to establish an *objective* criterion of truth. If it attempted to demolish doctrines of infallibilily of any kind, it would simply seek to justify its own foundations, which it has long ago done. In so far as the doctrine of infallibility is the only logical outcome of a dilemma in which the Christian church has, discreetly or indiscreetly, implicated itself, science has no objection to it; or for that matter to any other conclusion that logically results from premisses it does not grant. The question really most worthy of the attention of the "thoughtful," "truth-seeking," and "religious" mind, as Dr. Lyons styles it, is not the doctrine of infallibility, but the questions, What is religion, What is God, etc., etc.; and such questions the *truth*-seeking mind will find it impossible to answer arbitrarily: it must, perforce, answer them in conformity with that objective criterion of truth called science. And such subjects are as much the object of science as are motion and matter. *μκρκ.*

DER SATZ VOM GRUNDE ALS PRINZIP DES SCHLIESSENS. By Dr. *Franz Erhardt*. Halle a. S.: C. E. M. Pfeffer. 1891.

This little pamphlet of fifty-six pages, written and published to acquire for the author the *venia legendi* at the philosophical faculty of the University of Jena, treats the several figures of the syllogism from the standpoint that the middle term of the premisses is, logically considered, the consequence (*Folge*) of the subject and the reason (*Grund*) of the predicate in the conclusion. A few remarks are added on induction and analogy, without, however, entering into the problem as to the rôle which the method of induction plays in the evolution of the method of deduction. *κρσ.*

AGNOSTICISME. Essai sur quelques Théories pessimistes de la Connaissance. By *E. de Roberty*. Paris: Félix Alcan.

By the publication of this little book M. de Roberty redeems a promise made in his larger work, on the philosophy of the present century, already reviewed in *The Monist* (January, 1892). The pessimist theories of knowledge of which he treats are the three systems, those of Criticism, Positivism, and Evolutionism, to which he reduces contemporaneous philosophy. As these systems are regarded as parallel manifestations of a common stock of beliefs and general hypotheses, they must equally adopt the doctrine of Agnosticism. It is the aim of the present work to point out the several forms assumed by this doctrine and to show its falsity by an examination of the principles on which it is based. The author properly insists on the importance of distinguishing between the affirmation of the unknown and that of the unknowable. The recognition of the former is essential to all progress in knowledge, but the latter is "the direct negation of all possibility whatever of utilising the deficiencies of knowledge," and leads infallibly to the worship of ignorance. The best definition of the mental phenomenon of agnosticism, says M. de Roberty is the *pessimism* of the theory of knowledge, and it is not for nothing therefore that Kant preceded Schopenhauer in the development of idealism.

Modern agnosticism is based on the old notion of the separation of the phenomenon from the noumenon, and it was Kant who cleared it from its early theological and metaphysical conceptions. He affirmed the reality of the "thing in itself" as a fundamental postulate, and then declared that we can know nothing of things considered in themselves. Among the conceptions formed by the human mind through the exercise of its imaginative faculty are three which exhaust the entire content of the Unknowable. Thus it may be reduced to the idea of a reality other than that of which we are sensible; to the idea of a subject which perceives in a different manner from the real subject; and finally to the idea that our cerebral organisation reveals the world to us under delusive colors, all of which M. de Roberty declares to be simple fiction. His own ideas on the subject will appear later on.

Positivism stands towards materialism in the same relation as criticism stands towards idealism, whose noumenon becomes the unknowable thing in itself ; as the simple matter of materialism becomes the unknown existence about which positivism says we can neither affirm nor deny anything. Modern agnosticism may be regarded thus as representing the long sought synthesis of the purest materialism and the most transcendent spiritualism, and it offers a striking demonstration of the fundamental equivalence of the hypotheses hitherto formulated as to the origin and essence of things. It proves also, says M. de Roberty, that the great law of the identity of contraries is applicable directly to all our very general conceptions. Contradictory as they seem to be, universal postulates must, by virtue of that law, be fundamentally identical. This introduces a discussion of the antinomies, developed but not invented by modern criticism, which found in them ample justification for its conclusion of the reality of the unknowable.

The double antinomy of time and space is regarded by the author as always presenting itself under the aspect of a long chain of contradictions which are manifestly merely verbal. The opposition between finite and infinite may be resolved into the distinction between concrete and abstract, between particular and general, if infinity is taken as synonymous with, or the perfect substitute for, general and abstract quantity, the universal attribute of things isolated from the things themselves. As to the problems connected with the ideas of a vacuum, matter, force and motion, M. de Roberty supposes them to have a purely psychological solution. Such ideas go beyond the "conceptive" capacity of mechanics and belong to psychology considered, not as a branch of philosophy; or as philosophy itself, but as a science of abstract concepts.

The philosophy of evolution, although monistic in the sense that it recognises the law of the identity of opposites, shows itself not to be so in reality by its doctrine of the unknowable. In this monism and agnosticism contradict each other, as it is contrary to reason "to affirm at the same time the identity of every phenomenon and their unknowability. The first marks the supreme term of the second. Identity in general serves to define knowableness. So that, if we remain on the elevated summits of pure abstraction too long, we run the danger anticipated by the law of identity of contraries. We fall directly into the error of taking the apparent negation of identity or of pure knowledge, the unknowable, for something really distinct, really separated from the knowable." This is the illusion of Spencer and of all the philosophers who have undertaken the difficult task of applying monism as a corrective of agnosticism.

M. de Roberty concludes the present work with a discussion of the relation between idea and reality, the thought and the object thought of, in which he gives us his opinion on that disputed point. He says that what philosophy calls "the object" is composed essentially of external nature, in which is included our own organism. Very complicated systems of motions are transmitted to the grey nuclei or opto-striated bodies of the central regions of the brain. Here these motions de-

termine new motions of which the totality is described in psychophysics by the term "unconscious ideation." But this internal motion, continually tending to become again an initial or external motion, gives rise to unconscious reflex activity. The motion passes by the white nerve-fibres to the cortical periphery of the brain which becomes "the seat of a phenomenon, an excitation, a motion which prolongs or repeats the immediately preceding phenomenon, excitation, or motion, while giving it a shorter and more steady action." The sensations and the reflex-actions derived from them traverse the opto-striated nuclei without retardation and without giving rise to any system of ideas; while consciousness resides in the systemisation or union of the same sensations and reflex-actions. The notion of the ego results from the union or memory of certain ideas, sensations, and actions, which before their union and preservation by the cerebral cortex were unconscious. But before becoming unconscious ideas, those "intellectual virtualities" were in every other part of the organism, and in all the media which surround it, as, "manifestations of energy or of motion, it may be objective phenomena." Thus, says M. de Roberty, if the universe is composed of two parts, the ego and the non-ego, it can be affirmed that they form an uninterrupted circuit. He supposes that when the cosmical energy has produced the phenomena of unconscious mentality in the brain-centres, it is divided into two currents, one of which returns to its source and becomes directly cosmic energy again, and this will be the fate of the other current also when the life of the organism ceases.

This view the author supports by a consideration of the morphological and functional difference supposed to exist between the facts which constitute the notion of the "ego" and the primordial facts of unconsciousness comprised under the generic denomination of the "non-ego." He regards conscious ideas as the telegraphic alphabet, the stenographic writing of the cosmos. Consciousness serves to coördinate the incoherent crowd of events which at each instant invades the normal brain. In these we may see effects of the cause called "universe," and therefore its representatives and substitutes, which they could not be unless there was identity between the two. Thus the "ego" could be defined as the final synthesis of the "symbolic abridgments," of the micrographical abbreviations, of the "non-ego." Thus the ego serves only for the purpose of concentrating or condensing, so to say the non-ego, which it represents in a manner more or less durable and efficient.

This monistic theory gets rid of the unknowable and therefore is a great improvement on that of the materialist or of the idealist. Nevertheless it requires further elaboration. There is no difficulty in understanding that cosmic motion may become transformed within the organism into a feeling. This still, however, leaves unaccounted for the existence of the organism itself. A true monism will, therefore, require that the organism must be in some way identifiable with the cosmos. This is the true problem that has to be solved, and its solution will be greatly aided by the overthrow of agnosticism, against which M. de Roberty has made so vigorous and successful an attack in the present volume. Ω.

PERIODICALS.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Vol. III. Nos. 2 and 3.

Ueber die Empfindlichkeit des grünblinden und des normalen Auges gegen Farbenänderung im Spektrum. By *E. Brodhun.*

Kürzeste Linien im Farbensystem. By *H. v. Helmholtz.*

Die Raumanschauungen und die Augenbewegungen. By *Th. Lipps.*

Eine Beobachtung über das indirekte Sehen. By *Th. Wertheim.*

Ueber einige Eigentümlichkeiten des Tastsinns. By *G. Sergi.*

Beiträge zur vergleichenden Psychologie. I. Das Verhalten wirbelloser Tiere auf der Drehscheibe. By *K. L. Schaefer.*

Gegenantwort auf die Erwiderung von O. Flügel. By *J. Rehmke.*

Litteraturbericht.

The value of the first article on the sensitiveness of the green-blind and the normal eye in perceiving color-variations in the spectrum consists mainly in the three diagrams that exhibit the results obtained in the author's experiments.

Professor H. v. Helmholtz published in a former number his attempt at propounding "a formula which should play the same part in the province of color-sensations as the formula of the length of the linear element plays in geometry." . . . As geometry begins with the concept of a shortest line between two points, so our fundamental formula in this subject shall enable us to find that series of transitions between two given colors for which the sum of the perceptible differences is a minimum. Helmholtz proposes to call them "shortest color-lines" and comes to the conclusion that the whole domain of these apparently irregular phenomena are easily subsumed under a generalised formulation of Fechner's law.

Professor Th. Lipps criticises Wundt with regard to the latter's theory of measuring the visual field by ocular motion. Wundt's theory, he declares, is in need of several auxiliary hypotheses, such as the assumption that certain ocular motions are supposed to be more difficult than others: the visual field is said to possess the form of a spherical surface, etc. The author maintains that ocular motions do contribute to the construction of our space-conception, but in a different way than Wundt assumes. The most interesting part of the article appears to be the discussion of the genesis of the third dimension which is not given in the data of sensation but added to them as a judgment concerning these data. It is an interpretation of the data. There are still psychologists who regard the third dimension as immediately given. Professor Lipps refers as an instance to Prof. William

James's article "The Perception of Space" in (*Mind*, Vol. XII), where the latter declares that "no arguments in the world can prove a feeling which actually exists, to be impossible." While Wundt says that to the resting eye the form of the visual field is spherical because the sky appears to us as spherical; Lipps declares that we might just as well say that the visual field of the resting eye is a plane, because the earth appears to us as a level surface. We attribute to the visual field the form which certain reasons prompt us to. Certain convergences of the eyes induce us to place certain points at certain distances. We read, as it were, the distances out of the convergences of the ocular axes. Accordingly, when we cease to feel any difference in our feeling of convergency we cannot help attributing the same "depth" throughout to all the things with respect to which such feeling is wanting, and we place all objects beyond a certain range upon a spherical surface. Thus Lipps interprets the spherical form of the firmament as the result of our using both eyes, which use from habit has become the form of monocular vision also, and not as Wundt does from the spherical form of each visual field, which by habit has been transferred to binocular vision. There is a strange fact that distances on the left side are overestimated in comparison with those on the right side; and this fact is also claimed by Professor Lipps to be incompatible with Professor Wundt's theory, but in favor of his own views.

Th. Wertheim has made an observation which tends to prove that positive as well as negative fluctuations of light-intensity, cause the disappearance of objects indirectly seen.

G. Sergi publishes the results of his investigations concerning the sense of touch made in the Institute for Anthropology and Experimental Psychology at the University of Rome.

Karl L. Schaefer's results of experiments with invertebrate animals upon the rotatory table show that in the beginning a counter-rotation takes place, but not in all animals. It does not take place in some caterpillars; it does take place in black beetles, ants, flies, earwigs, provided they are at the time in actual motion. There is no after-affect from the rotation and thus they are not subject to vertigo as are the vertebrates. (Hamburg and Leipsic: Leopold Voss.) κρς.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Vol. XVI. No. 2.

Beiträge zur Logik. (Zweiter Artikel. Schluss.) By *A. Riehl.*

Ernst Platner's wissenschaftliche Stellung zu Kant in Erkenntnisstheorie und Moralphilosophie. (Zweiter Artikel. Schluss.) By *B. Seligkowitz.*

Ueber Begriff und Gegenstand. By *G. Frege.*

Bemerkungen zu Richard Avenarius's "Kritik der reinen Erfahrung." By *R. Willy.*

A. Riehl discusses in the second instalment of his "Contributions to Logic" the forms of judgment and the different kinds of conclusion. B. Seligkowitz concludes his article on Ernst Platner's relation to Kant, setting forth the former's criticism of the latter's views of synthetic judgments *a priori*, his moral theology, his psychological ideas, and moral philosophy. G. Frege explains his view of 'concept and object" with reference to the idea of Benno Kerry, who does not recognise between the two any absolute difference. (Leipsic: Reisland) κρς.

PHILOSOPHISCHE MONATSHEFTE. Vol. XXVIII. Nos. 3 and 4.

CONTENTS: April, 1892. No. 3.

Die Wirklichkeit als Phänomen des Geistes. By *A. Rosinski.*
Recensionen.
Litteraturbericht.

CONTENTS: May, 1892. No. 4.

Ueber das absolute Gehör. By *J. v. Kries.*
Die zweiten Purkinjeschen Bilder im schematischen und im wirklichen Auge. By *L. Matthiessen.*
Besprechungen.
Litteraturbericht.

Adolf Rosinski describes reality as a phenomenon of the mind and, following Quäbicker, he regards "the real as belonging to that complex which is given us in appearance. Being *(Wesen)* is not behind or beyond appearance; Being, being that which exists, existence is appearance. Appearance shows nothing but that which is in Being, and there is in Being nothing which is not manifested." (Berlin: Dr. R. Salinger.)

There are but few musicians who are able to recognise directly and without reference to another note, the pitch of a sound. This ability is called by musicians "absolutes Gehör." Professor Kries investigates in a long article, the conditions of this absolute musical ear so called, exhibiting the difficulties of an explanation without arriving at a definite result, which, however, may be expected from further investigations of the subject. Mr. Matthiessen's article on the second Perkinje-pictures, in the ideal and the real eye, consists exclusively of measurements and calculations of the curvature of the lens. The same number contains an appreciative and long (37 pp.) review of Prof. W. James's "Principles of Psychology." (Hamburg and Leipsic: Leopold Voss.) κρς.

THE AMERICAN JOURNAL OF PSYCHOLOGY. April, 1892. Vol. IV. No. 3.

On Certain Peculiarities of the Knee-Jerk in Sleep in a Case of Terminal Dementia. By *William Noyes*, M. D.
The Growth of Memory in School Children. By *T. L. Bolton*, A. B.
Studies from the Laboratory of Experimental Psychology of the University of Wisconsin. By Prof. *Joseph Jastrow*, Ph. D.
The Psychological Foundation of Realism. By *Alexander Fraser*, A. B.
Psychological Literature: I. Nervous System. By Prof. *H. H. Donaldson*, Clark University; II. Association, Reaction. By Prof. *J. McK. Cattell*, Columbia College; III. Hypnotism and Suggestion. By Prof. *Joseph Jastrow*, University of Wisconsin; IV. Sight.
Letters and Notes.

Dr. Noyes's investigations seem to corroborate the theory that not only the lower but also "the higher activities of the brain are also subject to a rhythmic rise and fall synchronous with vascular dilatation and contraction." Mr. Bolton publishes the results of his examination of the span of memory in the Grammar Schools of Worcester, Mass. The memory span measuring the power of concentrated and pro-

longed attention, increases with age rather than with the growth of intelligence. The girls have better memories than the boys. Memory can be increased by practice. The tests made before and after school do not show that the pupils suffer fatigue from the day's work. Memory-images before they are completely lost first suffer a confusion of order, then a loss of certain of its elements which are often replaced by similar elements. Previous ideas being one of the factors of confusion. Professor Jastrow's article presents a description of a series of experiments made in his psychological laboratory. He reproduces the Zöllner figures, briefly summarising their different interpretations by Zöllner, Hering, Aubert, Classen, Lipps, Hoppe, Wundt, Pisco, and Helmholtz. He further presents a study of involuntary movements of the hand on the glass plate apparatus, and describes the experiments of time measurement in classifying ideas, and in finding a given object within a given field. Mr. Fraser defends the Natural Realism of the Scotch school, making the tactumotor sense the ultimate test of reality. (Worcester, Mass.: Clark University.) κρς.

REVUE PHILOSOPHIQUE.

CONTENTS: April, 1892. No. 196.

LES PROCESSUS NERVEUX DANS L'ATTENTION ET LA VOLITION. By *Charlton Bastian.*

LA RESPONSABILITÉ. By *F. Paulhan.*

REVUE GÉNÉRALE: LE SPIRITISME CONTEMPORAIN. By *Janet* (*Pierre*).

ANALYSES ET COMPTES RENDUS: Der Positivismus vom Tode August Comte's bis auf unsere Tage. By *H. Gruber.* Die Psychologie der Suggestion. By *H. Schmidkunz.*

TRAVAUX DU LABORATOIRE DE PSYCHOLOGIE PHYSIOLOGIQUE: Etude expérimentale sur deux cas d'audition colorée. By *Beaunis and Binet.* Etude sur un nouveau cas d'audition colorée. By *Binet and Philippe.*

CONTENTS: May, 1892. No. 197.

DU SENS DE L'INÉGALITÉ. By *G. Mauret.*

LA RESPONSABILITÉ (concluded). By *F. Paulhan.*

LE PROBLÈME DE LA VIE (third and last article). By *Dunan.*

ANALYSES ET COMPTES RENDUS: Leçons cliniques sur l'hystérie et l'hypnotisme By *Pitres.* Corps et âme. Essais sur la philosophie de St. Thomas. By *J. Gardair.* Agnosticisme. By *E. de Roberty.* La physique de Straton de Lampsaque. By *Rodier.* Das Wahrnehmungs-Problem vom Standpunkte des Physikers, des Physiologen und des Philosophen. By *H. Schwarz.*

REVUE DES PÉRIODIQUES ÉTRANGERS: Vierteljahrsschrift für wissenschaftliche Philosophie.

CORRESPONDANCE ET INFORMATIONS.

The processes of attention and volition lie at the basis of all our mental and physical activities. Mr. Charlton Bastian discusses their nervous condition and comes to the conclusion *Voluntas et intellectus unum et idem sunt.* M. Paulhan treats the problem of responsibility under healthy and morbid conditions, in two consecutive articles. M. Mouret, whose former articles on relations will be reviewed in a future number by Mr. F. C. Russell, treats in a long article of the sense of inequality. M. Ch. Dunan concludes his essay on the problem of life, viewing the subject from a rather metaphysical standpoint. M. Pierre Janet presents us with

a very accurate review of the importance of the contemporary spiritism and spiritualism. He calls attention to the fact that modern psychology owes to the researches of the spiritualists, many new, startling, and interesting facts. He does not share their standpoint, yet his review is kind and sympathetic. (Paris: Félix Alcan.) κρς.

VOPROSUI FILOSOFII I PSICHOLOGII.* Vol. III. No. 12. March, 1892.

Positive Philosophy and the Unity of Science. (Continuation). By *B. N. Tchitcherin.* Article crowned by the Psychological Society of Moscow.

How does the Ministration to the General Good of All Relate to the Care for the Salvation of Our Own Soul? A letter to the Editor. By the *Archimandrite Antonii.*

Huxley as Representative of the Modern Scientific Theory of the World.

Telepathy. (Concluded.) By *Petrovo-Solovo.*

The Basis of Ethical Obligation. By *N. Grote.*

Special Department. About Ethical Fragments from Democritus. By *J. Radloff.* One of the Possible Cosmic Theories. A Study. By *A. Wilkins.*

Criticism and Bibliography. I. Review of Periodicals. II. Review of Recent Publications. Transactions of the Moscow Psychological Society. (Moscow, 1892.)

MIND. New Series. No. 2. April, 1892.

Pleasure and Pain. By *A. Bain.*

The Changes of Method in Hegel's Dialectic. II. By *J. Ellis McTaggart*

The Leipsic School of Experimental Psychology. By *E. Bradford Titchener.*

The Logical Calculus. II. By *W. E. Johnson.*

Discussions: Dr. Münsterberg and his Critics. By *S. Alexander.*

Critical Notices.

Prof. A. Bain criticises Mr. H. R. Marshall's theory of pleasure and pain as being determined by the relation between the energy given out and the energy received, saying that it leaves a very large region untouched and inexplicable. J. Ellis McTaggart defends the Hegelian dialectic system which, he declares, "is not so wonderful or mystic as it has been represented to be. It makes no attempt,' he says, "to deduce existence from essence; it does not even attempt to eliminate the element of immediacy, in experience, and to produce a self-sufficient and self-mediating thought." E. Bradford Titchener gives a general survey of the researches carried out in Wundt's Institute, and of the other psychological contents of the *Philosophische Studien*, from the date of Professor Cattell's paper on "The Psychological Laboratory at Leipsic" to the present time. W. E. Johnson, in his paper on "The Logical Calculus," brings out some of the underlying principles and assumptions which belong equally to the ordinary Formal Logic, to Symbolic Logic, and to the so-called Logic of Relatives. Prof. S. Alexander takes issue with Mr. Titchener's criticism of Professor Münsterberg's psychological investigations. Mr. Titchener's article which appeared in the October number of *Mind*, 1891, leaves the

* *Questions of Philosophy and Psychology.*

impression that the whole of the work under review is valueless. "Many of his objections," however, says Professor Alexander, "refer to unimportant points, and the graver theoretical ones are really groundless," and thus the critic "has contrived to give a one-sided judgment by neglecting the other considerations which give Dr. Münsterberg's work its value and significance." (London: Williams & Norgate.) κρς.

THREE AMERICAN MAGAZINES.

INTERNATIONAL JOURNAL OF ETHICS. April, 1892. Vol. II. No. 3.

Economic Reform Short of Socialism. By *E. Benj. Andrews.*
Pleasure and Pain in Education. By *Miss M. S. Gilliland*, London.
The Essentials of Buddhist Doctrine and Ethics. By Prof. *Maurice Bloomfield.*
The Three Religions. (Concluded.) By *J. S. Mackenzie*, M. A.
Discussions and Reviews.
The School of Applied Ethics.

THE PHILOSOPHICAL REVIEW. Vol. I. No. 3. May, 1892.

Herbert Spencer's Animal Ethics. By Prof. *Henry Calderwood.*
The Ultimate Ground of Authority. By Prof. *J. Macbride Sterrett.*
What is Reality? By *David G. Ritchie.*
Natural Science and the Philosophy of Nature. By Dr. *B. C. Burt.*
A Mathematical View of Free Will. By Prof. *J. E. Oliver.*
Discussions: Professor Ladd's Criticism of James's Psychology. By Prof. *J. P. Gordy.*
Reviews of Books and Summaries of Articles.

THE NEW WORLD. Vol. I. No. 1. March, 1892.

The Evolution of Christianity. By *Lyman Abbott.*
The Historic and the Ideal Christ. By *Charles Carroll Everett.*
The Future of Liberal Religion in America. By *J. G. Schurman.*
The Common, the Commonplace and the Romantic. By *William Rounseville Alger.*
Abraham Kuenen. By *Crawford Howell Toy.*
The Theistic Evolution of Buddhism. By *J. Estlin Carpenter.*
"Between the Testaments." By *Thomas R. Slicer.*
The New Orthodoxy. By *Edward H. Hall.*
Theological Aspects of the Philosophy of Thomas Hill Green. By *Charles B. Upton.*
Introductory Note.
Book Reviews.

There have sprung up within the last two years not less than four American magazines of progressive thought, which now compete in the proposition of their religious and philosophical conceptions to the world. These four magazines are, in the chronological order in which they were founded, *The Monist*, *The International Journal of Ethics*, *The Philosophical Review*, and *The New World*. *The Monist* represents that world-conception which takes its stand upon facts and systematises facts into a unitary view. Thus it recognises the methods of science as the methods

of all knowledge, to the exclusion of supernatural revelation, or intuitionalism, or any kind of mysticism. But *The Monist* does not rest satisfied with this. *The Monist* preaches a religion ; and the prophets of this religion are not only the great ethical teachers of mankind, but everybody who reveals truth, Kant and Comte, Kepler, Copernicus, Darwin, and all living representatives of scientific inquiry. Thus *The Monist* is a magazine that points out the religious import of science and philosophy.

The International Journal of Ethics follows in the same line in so far only as it has nothing to say to the old orthodox conceptions of religion. It tries to teach a higher morality, but in establishing ethics it pursues quite another course. It is the organ of the Ethical Societies and the leaders of the Ethical Societies are confident that they can have ethics not only without theology but also without religion, science, or philosophy. They consider the world-conception of a man as something indifferent, or unessential, in ethics, and by proposing a non-committal policy with respect to religious and philosophical views, they expect to be the better fitted to preach good conduct. (Philadelphia : *International Journal of Ethics*, 118 S. Twelfth Street.)

The Philosophical Review represents a philosophical conception which has still a strong hold upon the Universities on this side of the Atlantic. Transcendentalism, metaphysicism, and that theological philosophy which still operates with supernatural quantities, or at least has not discarded the dualistic features of supernaturalism, are represented in its columns. Certainly they are well represented and by their best upholders of the present time, and authors of more modern and positivistic views are not excluded. Exactly so in *The Monist*, the representatives of metaphysicism and those who still believe in the dual existence of man, in his self, or ego, and his transcendental existence are welcome ; but there is nevertheless a fundamental difference in the world-conception of the two magazines. (Boston, New York, Chicago : Ginn & Co.)

The New World is the latest new-comer in the field of magazine literature, and we welcome its appearance most cordially. There are strongly marked differences between *The New World* and *The Monist*, for the former is a theological magazine that deepens religion with the assistance of philosophy while the latter, rather the reverse, is a philosophical magazine that widens philosophy and applies it to practical life so as to become a religion. But for that very reason *The New World* seems to meet *The Monist* half way. *The New World* is an offshoot of modern theology. Its contributors come largely from the ranks of the maturest unitarian thinkers. They practically accept the principles of criticism and scientific inquiry and thus they are approaching rapidly that common goal of human thought, which *The Monist* propounds as the leading maxim of philosophy and religion, namely, to regard nature as the only revelation and experience as our guide in life ; to base religion upon and to derive ethics from a critically-sifted statement of facts. (Boston : Houghton, Mifflin & Co.) κος.

APPENDIX TO THE MONIST, VOL. II, NO. 4

KANT AND SPENCER

TWO ARTICLES REPRINTED FROM NOS. 51, 52, AND 158
OF THE OPEN COURT

1. THE ETHICS OF KANT
2. KANT ON EVOLUTION

BY
DR. PAUL CARUS

CHICAGO:
THE OPEN COURT PUBLISHING COMPANY

THE ETHICS OF KANT.

IN CRITICISM OF MR. HERBERT SPENCER'S PRESENTATION OF KANTISM.

MR. Herbert Spencer has published in *The Popular Science Monthly* for August, an essay on the Ethics of Kant; a translation of this article had appeared in the July Number of the *Revue Philosophique*, and it cannot fail to have been widely noticed. It is to be regretted that unfamiliarity with the German language and perhaps also with Kant's terminology has led Mr. Spencer into errors to which attention is called in the following discussion.*

Mr. Spencer says:

"If, before Kant uttered that often-quoted saying in which, "with the stars of Heaven he coupled the conscience of Man, as "being the two things that excited his awe, he had known more of "Man than he did, he would probably have expressed himself some-"what otherwise."

Kant, in his famous dictum that two things excited his admiration, the starry heaven above him and the conscience within him, contrasted two kinds of sublimity.† The grandeur of the Universe is that of size and extension, while the conscience of man commands respect for its moral dignity. The universe is wonderful in its expanse and in its order of mechanical

* Quotations from Mr. Spencer's essay will be distinguished by quotation-marks, while those from Kant will appear in hanging indentations.

† Kant distinguishes two kinds of sublimity: 1) the mathematical, and 2) the dynamical. His definitions are: 1) sublime is that in comparison with which everything else is small; and 2) sublime is that the mere ability to conceive which shows a power of emotion (Gemüth), the latter transcending any measurement by the senses. [1) Erhaben ist, mit welchem im Vergleich alles andere klein ist. 2) Erhaben ist, was auch nur denken zu können ein Vermögen des Gemüths beweist, das jeden Maasstab der Sinne übertrifft. Editio Hartenstein, Vol. V, pp. 257, 258.]

regularity; the conscience of man is grand, being intelligent volition that aspires to be in harmony with universal laws.

Mr. Spencer continues:

"Not, indeed, that the conscience of Man is not wonderful "enough, whatever be its supposed genesis; but the wonderfulness "of it is of a different kind according as we assume it to have been "supernaturally given or infer that it has been naturally evolved. "The knowledge of Man in that large sense which Anthropology "expresses, had made, in Kant's day, but small advances. The "books of travel were relatively few, and the facts which they con- "tained concerning the human mind as existing in different races, "had not been gathered together and generalized. In our days, the "conscience of Man as inductively known has none of that univer- "sality of presence and unity of nature which Kant's saying tacitly "assumes."

Mr. Spencer apparently supposes that Kant believed in a supernatural origin of the human conscience. This, however, is erroneous.

Mr. Spencer's error is excusable in consideration of the fact that some disciples of Kant have fallen into a similar error. Professor Adler, of New York, who attempts in the Societies for Ethical Culture to carry into effect the ethics of Pure Reason, maintains that the commandments of the *ought* and "the light that shines through them come from beyond, but its beams are broken as they pass through our terrestrial medium, and the full light in all its glory we can never see."

Ethics based on an unknowable power, is mysticism; and mysticism does not essentially differ from dualism and supernaturalism.

Kant's reasoning is far from mysticism and from supernaturalism. He was fully convinced that civilized man with his moral and intellectual abilities

had naturally evolved from the lower state of an animal existence. We read in his essay, "Presumable Origin of the History of Mankind" (Muthmasslicher Anfang der Menschengeschichte. Editio Hartenstein, Vol. IV, p. 321):

"From this conception of the primitive history of mankind it follows that the departure of man from the paradise represented to him by his reason as the earliest place of sojourn of his race, has been nothing else than the transition from the rude condition of a purely animal existence to the condition of a human being; a transition from the leading-strings of instinct to direction by reason, in a word, from the protectorate of nature to a status of freedom."

The view that the conscience of man is innate, in the sense of a non-natural, of a mysterious, or even of a supernatural origin, is untenable. Those disciples of Kant who entertain such views have certainly misinterpreted their great master, and the passages adduced by Mr. Spencer from so many sources are sufficient evidence of the fact that "there are widely different degrees" [we should rather say kinds] "of conscience in the different races." Mr. Spencer continues:

"Had Kant had these and kindred facts before him, his conception of the human mind, and consequently his ethical conception, would scarcely have been what they were. Believing, as he did, that one object of his awe—the stellar Universe—has been evolved,* he might by evidence like the foregoing have been led to suspect that the other object of his awe—the human conscience—has been evolved; and has consequently a real nature unlike its apparent nature." * * * "If, instead of assuming that conscience is simple because it seems simple to careless introspection he had entertained the hypothesis that it is perhaps complex—a consolidated product of multitudinous experiences received mainly by ancestors and added to by self—he might have arrived at a consistent system of Ethics." * * *

* The stellar Universe, of course, has not been evolved; Mr. Spencer means that according to Kant's mechanical explanation the planetary systems and milky ways of the stellar Universe are in a state of constant evolution.

"In brief, as already implied, had Kant, instead of his incon-
"gruous beliefs that the celestial bodies have had an evolutionary
"origin, but that the minds of living beings on them, or at least on
"one of them, have had a non-evolutionary origin, entertained the
"belief that both have arisen by Evolution, he would have been
"saved from the impossibilities of his Metaphysics, and the untena-
"bilities of his Ethics."

Mr. Spencer believes that Kant had assumed conscience to be "simple, because it seems simple to careless introspection." But there is no evidence in Kant's works for this assumption. On the contrary, Kant reversed the old view of so-called "rational psychology" which considered conscience as innate and which was based on the error that consciousness is simple. Des Cartes's syllogism *cogito ergo sum* is based on this idea, which at the same time served as a philosophical evidence for the indestructibility and immortality of the *ego*. The simplicity of consciousness had been considered as an axiom, until Kant came and showed that it was a fallacy, a paralogism of pure reason. Dr. Noah Porter has written, from an apparently dualistic standpoint, a sketch entitled "The Ethics of Kant," in which he says:

"The skepticism and denials of Kant's speculative theory in respect to noumena, both material and psychical, had unfortunately cut him off from the possibility of recognizing the personal *ego* as anything more than a logical fiction."

Kant says in his "Critique of Pure Reason" : *

"In the internal intuition there is nothing permanent, for the *Ego* is but the consciousness of my thought. * * * From all this it is evident that rational psychology has its origin in a mere misunderstanding. The unity of consciousness, which lies at the basis of the categories, is considered to be an intuition of the subject as an object; and the category of substance is applied to the intuition. But this unity is nothing more than

* Translation by J. M. D. Meiklejohn, pp. 244, 249.

the unity in *thought*, by which no object is given; to which therefore the category of substance cannot be applied."*

Concerning the statement that Kant had believed in the non-evolutionary origin of living beings, we quote from his essay on *The Different Races of Men*, Chap. III, where Kant speaks of "the immediate causes of the origin of these different races." He says:

"The conditions (*Gründe*) which, inhering in the constitution of an organic body, determine a certain evolutionary process (*Auswickelung*†) are called, if this process is concerned with particular parts, *germs*; if, on the other hand, it touches only the size or the relation of the parts to one another, I call it *natural capabilities* (*natürliche Anlagen*)."‡

And in a foot-note Kant makes the following remark:

"Ordinarily we accept the terms natural science (*Naturbeschreibung*) and natural history in one and the same sense. But it is evident that the knowledge of natural phenomena, as they *now are*, always leaves to be desired the knowledge of that which they *have been* before now and through what succession of modifications they have passed in order to have arrived, in every respect, to their present state. *Natural History*, which at present we almost entirely lack, would teach us the changes that have affected the form of the earth, likewise, the changes in the creatures of the earth (plants and animals), that they have suffered by natural transformations and, arising therefrom, the departures from the prototype of the original species, that they have experienced. It would probably trace a great number of apparently different varieties back to species of one and the same kind and would

* Compare also Kant's "Prol. zu jeder künftigen Metaphysik," § 46.

† We call attention to Kant's peculiar expression, in this passage, of *Auswickelung* which has now yielded to the term *Entwickelung*.

‡ Die in der Natur eines organischen Körpers (Gewächses oder Thieres) liegenden Gründe einer bestimmten Auswickelung heissen, wenn diese Auswickelung besondere Theile betrifft, *Keime*; betrifft sie aber nur die Grösse oder das Verhältniss der Theile unter einander, so nenne ich sie *natürliche Anlagen*.

convert the present so intricate school-system of Natural Science into a natural system in conformity with reason." *

Kant has nowhere, so far as we know, made any objection to the idea of evolution. But he opposed the theory that all life should have originated from *one single* kind. In reviewing and epitomizing Joh. Gottfr. Herder's work, "*Ideen zur Geschichte der Menschheit*," Kant says:

* * * "Book II, treats of organized matter on the earth. * * * The beginnings of vegetation. * * * The changes suffered by man and beast through climatic influences. * * * In them all we find one prevailing form and a similar osseous structure. * * * These transitional links render it not at all impossible that in marine animals, in plants, and, indeed, possibly in so-called inanimate substances, one and the same fundamental principle of organization may prevail, although infinitely cruder and more complex in operation. In the sight of eternal being, which beholds all things in one connection, it is possible that the structure of the ice-particle, while receiving form, and of the snowflake, while being crystallized, bears an analogous relation to the formation of the embryo in a mother's womb. * * * The third book compares the structure of animals and plants with the organization of man. * * * It was not because man was ordained to be a rational creature that upright stature was given him for using his limbs according to reason; on the contrary he acquired his reason as a consequence of his upright stature. * * * From stone to crystals, from crystals to metals, from metals

* Wir nehmen die Benennungen *Naturbeschreibung* und *Naturgeschichte* gemeiniglich in einerlei Sinne. Allein es ist klar, dass die Kenntniss der Naturdinge, wie sie *jetzt sind*, immer noch die Erkenntniss von demjenigen wünschen lasse, was sie ehedem *gewesen* sind und durch welche Reihe von Veränderungen sie durchgegangen, um an jedem Ort in ihren gegenwärtigen Zustand zu gelangen. Die *Naturgeschichte*, woran es uns noch fast gänzlich fehlt, würde uns die Veränderung der Erdgestalt, imgleichen die der Erdgeschöpfe (Pflanzen und Thiere), die sie durch natürliche Wanderungen (sic! I take it as a misprint for *Wandelungen*) erlitten haben, und ihre daraus entsprungenen Abartungen von dem Urbilde der Stammgattung lehren. Sie würde vermuthlich eine grosse Menge scheinbar verschiedener Arten zu Racen ebenderselben Gattung zurückführen, und das jetzt so weitläuftigte Schulsystem der Naturbeschreibung in ein physisches System für den Verstand verwandeln.

to plant-creation, from thence to the animal, and ultimately to man, we have seen the form of organization advancing, and with it the faculties and instincts of creatures becoming more diversified, until at last they all became united in the human form, in so far as the latter could comprise them. * * * As the body increases by food, so does the mind by ideas; indeed, we notice here the same laws of assimilation, of growth, and of generation. In a word, an inner spiritual man is being formed within us, which has a nature of its own and which employs the body as an instrument merely. * * * Our humanity is merely a preliminary training, the bud of a blossom to come. Step by step does nature cast off the ignoble and the base, while it builds and adds to the spiritual and continues to fashion the pure and refined with increasing niceness; thus are we in a position to hope from the artist-hand of nature that in that other existence our bud of humanity will also appear in its real and true form of divine manhood." * * *

[Herder's idea of evolution would stand on the whole if his conception of "the spiritual" did not imply a preternatural agent.]

"The present state of man is probably the link of junction between two worlds. * * * Yet man is not to investigate himself in this future state; he is to believe himself into it."

Kant makes no objection whatever to the evolutionary ideas of Herder. But Herder was not free from supernaturalism and from fantastic ideas in reference to the future development of man. He had not yet dropped the dualistic conception of the 'duplicity' of man and believed in the immortality of a distinct spiritual individual within his body. Kant's objection, therefore, is twofold; 1) against Herder's supernaturalism which leads him beyond this world; and, 2) against the descent of *all* species from *one and and the same genus*. He says:

"In the gradation between the different species and individuals of a natural kingdom, nature shows us nothing else

than the fact that it abandons individuals to total destruction and preserves the species alone. * * * As concerns that *invisible* kingdom of active and independent forces, we fail to see why the author, after having believed he could confidently infer from organized beings, the existence of the rational principle in man did not rather attribute this principle directly to him merely as spiritual nature, instead of lifting it out of chaos through the structural form of organized matter. * * * As to the gradation of organized beings, our author is not to be too severely reproached, if the scheme has not met the requirements of his conception, which extends so far beyond the limits of this world; for its application even to the natural kingdoms here on earth leads to nothing. The slight differences exhibited when species are compared with reference to their common points of resemblance, are, where there is such great multiplicity, a necessary consequence of just this multiplicity. The assumption of common kinship between them, inasmuch as one kind would have to spring from another and all from one original and primitive species, or from one and the same creative source (Mutterschoss)—the assumption of such a common kinship would lead to ideas so strange that reason shrinks from them, and we cannot attribute this idea to the author without doing him injustice. Concerning his suggestions in comparative anatomy through all species down to plants, the workers in natural science must judge for themselves whether the hints given for new observations, will be useful and whether they are justified. * * * It is desirable that our ingenious author who in the continuation of his work will find more *terra firma*, may somewhat restrain his bright genius, and that philosophy (which consists rather in pruning than in fostering luxuriant growth) may lead him to the perfection of his labors not through hints but through definite conceptions, not by imagination but by observation, not by a metaphysical or emotional phantasy but by reason, broad in its plan but careful in its work."

Kant rejected certain conceptions of evolution, but he did not at all show himself averse to the idea in general. He touched upon the subject only incidentally and it is certain that he did not especially favor

or entertain the belief in a non-evolutionary origin of living beings.

Before proceeding to the main points of his criticism, Mr. Spencer calls attention to what he designates as Kant's *abnormal* reasoning. Mr. Spencer says:

"Something must be said concerning abnormal reasoning as "compared with normal reasoning." * * *

"Instead of setting out with a proposition of which the negation is inconceivable, it sets out with a proposition of which the "affirmation is inconceivable, and therefrom proceeds to draw conclusions." * * *

"The first sentence in Kant's first chapter runs thus: 'Nothing can possibly be conceived in the world, or even out of it, "which can be called good without qualification, except a Good "Will.'" * * *

"Most fallacies result from the habit of using words without "fully rendering them into thoughts—passing them by with recognitions of their meanings as ordinarily used, without stopping to "consider whether these meanings admit of being given to them in "the cases named. Let us not rest satisfied with thinking vaguely "of what is understood by 'a Good Will,' but let us interpret the "words definitely. Will implies the consciousness of some end to "be achieved. Exclude from it every idea of purpose, and the conception of Will disappears. An end of some kind being necessarily implied by the conception of Will, the quality of the Will is "determined by the quality of the end contemplated. Will itself, "considered apart from any distinguishing epithet, is not cognizable "by Morality at all. It becomes cognizable by Morality only when "it gains its character as good or bad by virtue of its contemplated "end as good or bad." * * *

"Kant tells us that a good will is one that is good in and for "itself without reference to ends."

It is unfortunate that Mr. Spencer misunderstood the first sentence of Kant's book (*Grundlegung zur Metaphysik der Sitten*). Kant does not speak of "a good will without qualification," nor does the expression "without qualification" refer to "a will without reference to ends." Kant speaks of good will in

opposition to other good things. Nothing, he says, can without qualification (*ohne Einschränkung*) be called good, except a good will.* Dr. Porter sums up the first page of Kant's essay in the following words:

"The first section of the treatise opens with the memorable and often-quoted utterance, that 'nothing can be possibly conceived in the world, or even out of it, which can be called good without qualification, except a good will.' If character is compared with gifts of nature, as intelligence, courage, and gifts of fortune, as riches, health, or contentment, all these are defective, 'if there is not a good will to correct their possible perversion and to rectify the whole principle of acting, and *adapt it to its end.*' † A man who is endowed with every other good can never give pleasure to an impartial, rational spectator unless he possesses a good will. 'Thus a good will appears to constitute the indispensable condition of being worthy of happiness.' * * * 'Moreover, a good will is good not for what it effects but for what it intends, even when it fails to accomplish its purposes, * * * as when the man wills the good of another and is impotent to promote it, or actually effects just the opposite of what he proposes or wills.'"

In the passages quoted by Dr. Porter, Kant speaks of "the *end* to which good will adapts other goods"; and in another passage of the same book, Kant directly declares that "it is the *end* that serves the will as the objective ground of its self-determination." Mr. Spencer must have overlooked these sentences. Kant says:

"The will is conceived as a power of determining itself to action in accordance with the conception of certain laws. And such a power can only be met with in rational beings. *Now it is the END that serves the will as the objective ground of its self-determination*, and this end, if fixed by reason alone, must hold equally good for all rational creatures."

* * *

Mr. Spencer interrupts his essay on the Ethics of

* The original of the first sentence reads: "Es ist überall nichts in der Welt, ja überhaupt auch ausser derselben zu denken möglich, was ohne Einschränkung für gut könnte gehalten werden, als allein ein guter Wille."

† *Italics are ours.*

Kant by a digression on Kant's conception of time and space. It would lead us too far at present if we would follow Mr. Spencer on this ground also. A comparison of Spencer's remarks on the subject with Kant's "Critique of Pure Reason" will show that Kant's view of space and time is radically different from that view which Mr. Spencer represents as the Kantian conception of time and space.

* * *

Kant rejects the idea that happiness is the end and purpose of life and at the same time he declares that ethics must be based not on the pursuit of happiness but on the categorical imperative or more popularly expressed on our sense of duty.

Mr. Spencer argues:

"One of the propositions contained in Kant's first chapter is "that 'we find that the more a cultivated reason applies itself with "deliberate purpose to the enjoyment of life and happiness, so "much the more does the man fail of true satisfaction.'" * * *

"That which Kant should have said is that the *exclusive* pur- "suit of what are distinguished as pleasures and amusements is dis- "appointing." * * *

"It is not, as Kant says, guidance by 'a cultivated reason,' "which leads to disappointment, but guidance by an uncultivated "reason."

The passage quoted by Mr. Spencer from Kant, reads in its context as follows:

"In the physical constitution of an organized being we take it for granted* that no organ for any purpose will be found in it but

*The phrase "we take it for granted" (in the original "nehmen wir es als Grundsatz an)" reads in the translation quoted by Mr. Spencer: "we take it as a fundamental principle." Mr. Spencer objects to the passage declaring that there *are* many organs (such as rudimentary organs) in the construction of organized beings which serve *no* purpose. This however does not stand in contradiction to Kant's assumption that organs of organized beings serve a special purpose. The rudimentary organs have under other conditions served a purpose for which they then were fit and well adapted and are disappearing now because no longer used.

such as is also the fittest and best adapted for that purpose. If in a being possessing reason and will, the preservation, the prosperity, in a word, the happiness of that being, constituted the actual purpose of nature, nature had certainly adopted an extremely unwise expedient to this end, had it made the reason of that being the executive agent of its purposes in this matter. For all actions that it had to perform with this end in view, and the whole rule of its conduct, would have been far more exactly prescribed by *instinct*, and this end would have been far more safely attained by this means than can ever take place through the instrumentality of *reason*." * * *

"As a matter of fact we find that the more a cultivated reason occupies itself with the purpose of enjoying life and happiness, the farther does the person possessing it recede from the state of true contentment; and hence there arises in the case of many, and pre-eminently in the case of those most experienced in the exercise of reason, if they are only frank enough to confess it, a certain degree of misology or hate of reason; for after weighing every advantage that they derive, I will not say from the invention of all arts facilitating ordinary luxury, but even from the sciences, (which after all are in their eyes a luxury of the intellect,) they still discover that virtually they have burdened themselves more with toil and trouble than they have gained in point of happiness, and thus, in the end, they are more apt to envy than contemn the commoner type of men who are more immediately subject to the guidance of natural instinct alone, and who do not suffer their reason to influence in any great degree their acts and omissions."

Kant uses the expression "cultivated reason" not in opposition to "uncultivated reason," but "to instinct" as that inherited faculty which teaches a being to live in accordance with nature and its natural conditions, without the interference of thought and reflection.

That uncultivated reason would lead to disappointment, Kant never would have denied. He would have added: "It does more, it leads to a speedy ruin."

But if reason does not produce happiness, what then is the use of reason? Kant answers, reason produces in man the good will.

It is reason which enables man to form abstractions, to think in generalizations and to conceive the import of universal laws. When his will deliberately and consciously conforms to universal laws, it is good. Kant says:

"Thus will (viz. the good will) can not be the sole and whole Good, but it must still be the highest Good and the condition necessary to everything else, even to all desire of happiness." * * *

"To know what I have to do in order that my volition be good, requires on my part no far-reaching sagacity. Unexperienced in respect of the course of nature, unable to be prepared for all the occurrences transpiring therein, I simply ask myself: Can'st thou so will, that the maxim of thy conduct may become a universal law? Where it can not become a universal law, there the maxim of thy conduct is reprehensible, and that, too, not by reason of any disadvantage consequent thereupon to thee or even others, but because it is not fit to enter as a principle into a possible enactment of universal laws."

If a maxim of conduct is fit to enter as a principle into a possible enactment of universal laws, it will be found in harmony with the cosmical laws; if not, it must come in conflict with the order of things in the universe. It then cannot stand, and will, if persistently adhered to, lead (perhaps slowly but inevitably) to certain ruin.

Concerning the proposition that happiness may be regarded as the purpose of life Kant in his review of Herder's "Ideen zur Philosophie der Geschichte der Menschheit" Ed. H. IV, p. 190), speaks of the relativity of happiness and its insufficiency as a final aim of life:

* * * "First of all the happiness of an animal, then that of a child and of a youth, and lastly that of man! In all epochs of human history, as well as among all classes and conditions of the same epoch, that happiness has obtained which was in exact conformity with the individual's ideas and the degree of his habituation to the conditions amid which he was born and raised. Indeed, it is not even possible to form a comparison of the degree of happiness nor to give precedence to one class of men or to one generation over another. * * * If this shadow-picture of happiness....were the actual aim of Providence, every man would have the measure of his own happiness within him. * * * Does the author (Herder) think perhaps that, if the happy inhabitants of Otaheite had never been visited by more civilized peoples and were ordained to live in peaceful indolence for thousands of years to come—that we could give a satisfactory answer to the question why they should exist at all and whether it would not have been just as well that this island should be occupied by happy sheep and cattle as that it should be inhabited by men who are happy only through pure enjoyment?"

Concerning the mission or purpose of humanity and its ultimate realization, Kant interprets Herder's views as follows:

"It involves no contradiction to say that no individual member of all the offspring of the human race, but that only the species, fully attains its mission (Bestimmung). The mathematician may explain the matter in his way. The philosopher would say: the mission of the human race as a whole is *unceasing progress*, and the perfection (Vollendung) of this mission is a mere idea (although in every aspect a quite useful one) of the aim towards which, in conformity with the design of providence, we are to direct our endeavors."

We learn from the passages quoted from Kant that his idea of good will is neither mystical and supernatural, nor is it vague. It is a conception as logically and definitely defined as any mathematical definition. Good will in the sense in which Kant defines it, is only possible in a reasonable being by the power

of its reason. The good will is the intention of conforming to universal principles and thus of being in harmony with the All. This good will is the cornerstone of Kant's ethics; it appears as the categoric imperative of duty, so to act that the maxim of one's conduct may be fit to become a universal law. It is formulated in another passage: "Act so as if the maxim of thy conduct by thy volition were to become a natural law."

It is easily seen that, in Kant's conception, the *ought* of morals (viz. of the categoric imperative) does not stand in contradiction to the *must* of natural laws. Kant's conception is monistic, not dualistic. Kant says:

"The moral *ought* is man's *inner*, *necessary* volition as being a member of an intelligible world and is *conceived* by him as an ought only in so far as he considers himself also as a member of the sensory world."*

Our way of explaining it would be: Man *feels* in his activity the categoric imperative as an ought. So the snow crystal, if it were possessed of sensation, would *feel* its formation as an "ought." But both are, and to an outside observer will appear, as a "must."

* * *

In the Spencerian system of ethics, which is utilitarianism, the moral maxim or the idea of duty is not distinguished from the feeling of pleasure or pain that accompanies ethical thoughts and acts, and their consequences. This lack of distinction induces Mr. Spencer to consider man's pursuit of happiness as the basis of ethics. Accordingly the aim of ethics, he

* Das moralische Sollen ist also ein eigenes nothwendiges Wollen als Gliedes einer intelligiblen Welt, und wird nur sofern von ihm als Sollen gedacht, als er sich zugleich wie ein Glied der Sinnenwelt betrachtet. Ed. Hartenstein vol IV. p. 303.

maintains, is not the performance of duty, not the realization of the good; to the utilitarian this is only the means. The end of ethics is the greatest happiness of the greatest number.

It is strange that Mr. Spencer's essay contains a passage which, although intended as a point of objection to Kant, is a corroboration of Kant's ethics, and a refutation of Mr. Spencer's own views. While denying the statement that "a cultivated reason, if applied with deliberate purpose to the enjoyment of life and happiness, will fail to produce true satisfaction," Mr. Spencer says:

> "I assert that it is untrue on the strength of personal experi-
> "ences. In the course of my life there have occurred many in-
> "tervals, averaging a month each, in which the pursuit of happi-
> "ness was the sole object, and in which happiness was success-
> "fully pursued. How successfully may be judged from the fact
> "that I would gladly live over again each of those periods
> "without change, an assertion which I certainly cannot make of
> "any portions of my life spent in the daily discharge of duties."

This statement, if it proves anything, proves that happiness is one thing and duty is another; it proves that Kant's theory of ethics, which is based on the discharge of duty and not on the pursuit of happiness, is correct, and that Mr. Spencer's theory which identifies duty with the pursuit of happiness, is wrong.

However, we must in this place express our opinion that Mr. Spencer's statement *cannot* be quite correct. The discharge of duty, unpleasant though the drudgery part of it may have been, was undoubtedly accompanied and followed by a certain satisfaction, which perhaps was less in quantity, but certainly higher in quality than the pleasure derived from the mere pursuit of happiness. And in the valuation of the intrinsic and of the moral worth of pleasures, the

quality alone should be taken into consideration, not the quantity. In this sense only can an ethical hedonism or utilitarianism be acceptable. The man whose pleasures and pains are of a higher kind, of a nobler form, and of a better quality, is morally and generally the more evolved man. And then, the basis of ethics would be, not so much pleasure or happiness as the quality of pleasure or happiness; it would be an aspiration to evolve toward a higher plane of life, to shape our lives in nobler forms, and to enjoy nobler, greater, and more spiritual pleasures, or, as Kant says, "unceasing progress."

Mr. Spencer's assertion, if taken in the sense in which it stands, is a contradiction of his ethical theory. But even if Mr. Spencer had declared that the discharge of duty affords a kind of happiness or satisfaction, as it truly does, there would still remain a deep gap between his and Kant's ethics. Mr. Spencer reduces ethics to mere worldly prudence; he says that we must do the good in order to be happy, and for the sake of its utility, and Kant says we must act so as to be in agreement with universal law. Mr. Spencer says:

"But now, supposing we accept Kant's statement in full, "what is its implication? That happiness is the thing to be "desired, and, in one way or another, the thing to be "achieved." * * *

"An illustration will best show how the matter stands. To a "tyro in archery the instructor says: 'Sir, you must not point "your arrow directly at the target; if you do, you will inevitably "miss it; you must aim high above the target, and you may then "possibly pierce the bull's-eye.' What now is implied by the "warning and the advice? Clearly that the purpose is to hit the "target. Otherwise there is no sense in the remark that it will "be missed if directly aimed at; and no sense in the remark that "to be hit, something higher must be aimed at. Similarly with "happiness. There is no sense in the remark that happiness will

"not be found if it is directly sought, unless happiness is a thing "to be somehow or other obtained." * * *

"So that in this professed repudiation of happiness as an end, "there lies the inavoidable implication that it *is* the end."

The pursuit of happiness is by no means repudiated by Kant as wrong or immoral; it is only maintained to be insufficient as a foundation of ethics. Kant's remark that happiness will not be found if it is directly sought has no reference to his own ethics. Kant, speaking from the standpoint of one who takes the view of utilitarianism, says that if a cultivated reason applies itself to the sole purpose of enjoying life and happiness, it will meet with a failure.*

Any other explanation of the moral *ought* than that from the Good Will, Kant declares to be *heteronomy*. Will would no longer be itself, and the principle of action would lie in something foreign to the will. Kant says:

"Will in such a case would not be a law to itself; but the object by its relation to the will would impose the law upon the will." * * * This would admit of hypothetical imperatives only: "I ought to do a certain thing, because I want something else." The moral and therefore categorical imperative, on the contrary, says: 'I ought to act so or so, even if I had nothing else in view.' For instance: the hypothetical imperative of heteronomy says: 'I ought not to lie, if I ever wish to preserve my honor.' The categorical imperative says: 'I ought not to lie even if it would not in the least bring me to shame.'"

Mr. Spencer quotes the following passage from Kant:

"I omit here all actions which are already recognized as inconsistent with duty, although they may be useful for this or that purpose, for with these the question whether they are done *from duty* can not arise at all, since they even conflict with it. I also set aside those actions which really conform to duty,

* The passage referred to is quoted in full on page 16.

but to which men have *no* direct *inclination*, performing them because they are impelled thereto by some other inclination. For in this case we can readily distinguish whether the action which agrees with duty is done *from duty*, or from a selfish view. It is much harder to make this distinction when the action accords with duty, and the subject has besides a *direct* inclination to it. For example, it is always a matter of duty that a dealer should not overcharge an inexperienced purchaser, and wherever there is much commerce the prudent tradesman does not overcharge, but keeps a fixed price for every one, so that a child buys of him as well as any other. Men are thus *honestly* served; but this is not enough to make us believe that the tradesman has so acted from duty and from principles of honesty: his own advantage required it; it is out of the question in this case to suppose that he might besides have a direct inclination in favor of the buyers, so that, as it were, from love he should give no advantage to one over another [!]. Accordingly the action was done neither from duty nor from direct inclination, but merely with a selfish view.

"On the other hand, it is a duty to maintain one's life, and, in addition, every one has also a direct inclination to do so. But on this account the often anxious care which most men take for it has no intrinsic worth, and their maxim has no moral import. They preserve their life *as duty requires*, no doubt, but not *because duty requires*. On the other hand, if adversity and hopeless sorrow have completely taken away the relish for life; if the unfortunate one, strong in mind, indignant at his fate rather than desponding or dejected, wishes for death, and yet preserves his life without loving it—not from inclination or fear, but from duty—then his maxim has a moral worth.

"To be beneficent when we can is a duty; and besides this, there are many minds so sympathetically constituted that without any other motive of vanity or self-interest, they find a pleasure in spreading joy around them, and can take delight in the satisfaction of others so far as it is their own work. But I maintain that in such a case an action of this kind, however proper, however amiable it may be, has nevertheless no true moral worth, but is on a level with other inclinations" (pp 17–19)

Kant's metaphysics of ethics is to practical ethics what pure mathematics is to applied mathematics, or what logic is to grammar. Kant's method of reasoning *in abstracto* everywhere shows the mathematical bent of his mind. In a foot-note (Editio Hartenstein, IV), p. 258, he says:

"As pure mathematics is distinguished from applied mathematics and pure logic from applied logic, so may the pure philosophy (the metaphysics) of ethics be distinguished from the applied philosophy of ethics, that is, as applied to human nature. By this distinction of terms it at once appears that ethical principles are not based upon the peculiarities of human nature but that they must be existent by themselves *a priori*,—whence, for human nature, just as well as for *any* rational nature, practical rules can be derived."

Schleiermacher says:

"A good is any agreement ("unity") of definite sides [certain aspects] of reason and nature. * * * The end of ethical praxis is the highest good, *i. e.*, the sum of all unions of nature and reason. * * *. The moral law may be compared to the algebraic formula which (in analytical geometry) determines the course [path] of a curve; the highest good may be compared to the curve itself, and virtue, or moral power, to an instrument arranged for the purpose of constructing the curve according to the formula." (Quoted from a translation of Ueberweg.)

Kant declares in other passages that in examples taken from practical life, it will be difficult to separate clearly and unmistakably the sense of duty as the real moral motive from other motives, inclinations, habits, etc. But such a distinction must be made, if the moral value of motives is to be considered *in abstracto*. This is necessary for a clear conception of the essential features of morality. Mr. Spencer has on other occasions highly praised the power of generalization, which indeed is fundamentally the same faculty, as thinking *in abstracto;* here, however, he does not follow

Kant's argument, but declares "that the assumed distinction between sense of duty and inclination is untenable." He says:

"The very expression *sense* of duty implies that the mental "state signified is a feeling; and if a feeling it must, like other feel- "ings, be gratified by acts of one kind and offended by acts of an "opposite kind. If we take the name conscience, which is equiva- "lent to sense of duty, we see the same thing. The common ex- "pressions 'a tender conscience,' 'a seared conscience,' indicate the "perception that conscience is a feeling—a feeling which has its "satisfactions and dissatisfactions, and which *inclines* a man to acts "which yield the one and avoid the other—produces an *incli-* "*nation*," (p. 476).

It is quite true that every state of consciousness is a feeling, but we can and must discriminate between consciousness or feeling and the idea or thought which becomes conscious, in which the feeling appears, and which is, so to speak, the special form of a certain feeling. The consciousness and its special form, the feeling and the mental object of feeling, are in reality one and the same. Yet they are different and must *in abstracto* be well distinguished. Mr. Spencer's method is that of generalization, but generalizing can lead to no satisfactory results, if it is not constantly accompanied by discrimination. We must generalize and discriminate.

If a certain group of states of consciousness takes the form of a logical syllogism, it must not be expected that logic will find its explanation in feeling, although it cannot be denied that all the states of consciousness are feelings. Not the feeling in this case is to be explained, but logic. In our generalizations we must discriminate *in abstracto* between the feeling and the idea which feels. We must positively abstract from feeling and cannot consider whether the feeling of log-

ical arguments is pleasant or unpleasant. Mr. Spencer's method of explaining ethics, if applied to logic, would be as follows: "Man's logical sense is a very complex feeling and has developed from simple percepts such as can be observed in the lowest animals; percepts are a higher evolved form of reactions against irritations such as take place in protoplasm. The old method of explaining logic is that of deduction, modern logic will be inductive. Formerly pure logic was considered as a science *a priori*; but the evolution-philosophy shows that logic is developed by steps, it appears *a priori* to the individual now, but it is in reality a consolidated product of multitudinous experiences received mainly by ancestors and added to by self. Logical sense accordingly finds its explanation in most simple feelings. Our conceptions of logically incorrect feelings will be more and more avoided because they will ultimately be found to be unpleasant; logical correctness is striven for because of the feeling of satisfaction that accompanies the conception of a logically correct conclusion."

Sense is feeling, there can be no doubt. Logical sense and mathematical sense are feelings and if a person thinks a mathematical axiom or a logical syllogism or an ethical maxim, he has a feeling. Logical sense of reason is the product of evolution, and it cannot be denied either that one man has a more logical or mathematical or moral sense than another. But it does not follow that an explanation of mathematics, or logic, or ethics, must be derived from feeling pleasure and pain, or happiness. On the contrary we must abstract from feeling altogether and concern ourselves with the object of feeling only, which is the idea or the special form in which and as which feeling

appears. States of consciousness (never mind whether they are painful or pleasurable) must be considered as moral if their mental object, *i. e.*, the idea, the thought, the motive, the form in which feeling becomes manifest, is in harmony with the universal order of things.

* * *

Mr. Spencer declares that the world would be intolerable "if Kant's conception of moral worth were displayed universally in men's acts." And it must be acknowledged that Kant's ethics in their logical and irrefutable rigidity not only impressed the literary world of his time with the grandeur and sublimity of ethics; Kant's ethics also astounded, and overwhelmed his readers with awe. Virtue no longer appeared to be the fervid enthusiasm of sentiments; it congealed into the cold idea of duty which can be fixed in abstract rules and will operate like the correctly calculated gear of a machine. Objections have been raised by some of Kant's own disciples; but it must be known that the Kantian view of ethics does not suppress feelings, emotions and inclinations, it excludes them only from an estimation of the moral worth of actions. Kant gave the *coup de grace* to all sentimentality which had taken the lead in ethical questions too long. Mr. Spencer says:

"If those acts only have moral worth which are done from "a sense of duty * * * we must say that a man's moral "worth is greater in proportion as the strength of his sense of "duty is such that he does the right thing not only apart from "inclination but against inclination. According to Kant, then, "the most moral man is the man * * * who says of another "that which is true though he would like to injure him by a false-"hood; who lends money to his brother though he would prefer to "see him in distress."

Schiller, although an admirer of Kant, makes in

his Xenions a similar objection to this corollary of the ethics of pure reason. He says:

> "Willingly serve I my friends; but 'tis pity, I do it with pleasure.
> And I am really vexed, that there's no virtue in me!"

And he answers in a second distich:

> "There is no other advice than that you try to despise friends,
> And, with disgust, you will do what such a duty demands."

The difficulty is removed under the following consideration: A man with good inclinations is less exposed to temptation than a man with bad inclinations. If both act morally under conditions otherwise the same, the latter has shown greater strength of moral purpose than the former. The former's character (viz., his inherited inclinations and habits which represent the sum total of the moral energies of his ancestors,) is more moral than that of the latter. But the latter deserves more credit than the former for overcoming the temptation; he has in this special act shown more moral strength of will than his more fortunate and morally higher advanced fellow-man. To those who have accepted the Kantian view, Mr. Spencer's and Schiller's objection can serve as a warning, not to lose sight of emotions altogether. Man is not only a reasonable being, he is at the same time a feeling creature. The instinctive faculties of man, the so-called subconscious states, are the basis of his consciousness. They form the roots of his soul from which spring the clear conceptions of his reason. The more man's habits and inclinations agree with morals, the more strength of purpose is left for further ethical advancement and moral progress.

Similar objections have also been made to Kant's mechanical explanation of the origin of the planetary systems and milky ways. It seemed as if the divin-

ity of nature were replaced by the rigid law of gravity. In his poem "The God's of Greece," Schiller complains:

"Fühllos selbst für ihres Künstlers Ehre,
Gleich dem todten Schlag der Pendeluhr,
Dient sie knechtisch dem Gesetz der Schwere,
Die entgötterte Natur."

"Dead even to her Master's praise,
Like lifeless pendulum's vibration,
Lo, godless Nature now obeys,
Slave-like, the law of gravitation." *

Such objections are always raised when a scientific explanation destroys the mystic view that a spirit or at least something unexplainable is the supposed cause of certain phenomena. Our sentiments are so closely connected and intimately interwoven with our errors that truth appears hostile to sentiment, and it becomes difficult to part with errors sanctified by emotion. Sentimentality always complains that clear thought is an enemy of romanticism, and romanticism is the only possible poetry to the taste of the sentimental.

Now it cannot be denied that a one-sided knowledge not only appears rigid, it truly *is* so, and will be destructive of such emotions as reverence, awe, aesthetic taste, religion and art. Criticism is a most essential feature of science and philosophy, and how negative, how desolate and melancholy appear the results of criticism! But the pruning process of criticism is very wholesome, and true science will only profit by discarding the vagueness of indistinct conceptions. Alpine lakes that are really deep can only gain by lucidity. Thus the clearness of genuine science and broad philosophy will only show the depth of truth into which by all its lucidity our emotions can

* Slightly altered from B. W. Ball's translation in The Open Court, p. 83.

plunge without ever finding it shallow or fathoming it in all its profundity.

Kant's doctrine of ethics is a truth that can stand the severest test.

Ethics, in the sense of the word as used by Kant, can be found in man only, in so far as he is a reasonable being. A truly reasonable being does not allow himself to be guided by impulses but is led by maxims. Inclinations and habits are remnants of instinct. Not he who in instinctive good-naturedness acts morally, is the ethical man, but he who deliberately and consciously considers himself a representative of the general order of things. The man, who adopts such maxims as can become universal principles, identifies his will with the laws of the universe. Man's moral dignity must not be sought in vague feelings or in instinctive inspirations; it is based upon his reason and is developed in so far only as he makes use of his reason.

KANT ON EVOLUTION.

IN CRITICISM OF MR. HERBERT SPENCER'S PRESENTATION OF KANTISM.

IT is very strange that Mr. Herbert Spencer will again and again attack the philosophy and ethics of Kant for views which Kant never held.* It is possible that there are disciples of Kant who deny the theory of evolution. Yet it is certain that Kant himself is not guilty of this mistake. Thinkers who reject the theory of evolution are in this respect as little entitled to call themselves disciples of Kant as, for instance, the Sadducees were to call themselves followers of Christ. Kantian philosophy was foremost in the recognition of the need of evolution, and that at a time when public interest was not as yet centered upon it.

Mr. Spencer's merits in the propagation of the theory of evolution are undeniable, and he deserves our warmest respect and thanks for the indefatigable zeal he has shown in the performance of this great work, for the labors he has undergone, and the sacrifices he has made for it. Yet recognising all that Mr. Spencer has done, we should not be blind to the fact that Kant's conception of evolution is even at the present day more in conformity with the facts of natural science than Mr. Spencer's philosophy, although the latter commonly goes by the name of the philosophy of evolution.

It is painful to note that in many places where Mr. Spencer refers to Kant's philosophy, he does it slightingly, as though Kant were one of the most irrational of thinkers. Kant's reasoning is denounced as "abnormal" and "vicious." I find such phrases as, "It

* See Mr. Spencer's article in *Mind*, No LIX, p. 313.

is a vice of Kant's philosophy . . . .," "If Kant had known more of Man than he did . . . .," etc. Mr. Spencer characterises Kant's method as follows:

> "Instead of setting out with a proposition of which the negative is inconceivable, it sets out with a proposition of which the affirmation is inconceivable, and proceeds to draw conclusions therefrom."

These attacks of Mr. Spencer on Kant are not justifiable. Kant is not guilty of the faults for which he is arraigned by Mr. Spencer.

* * *

It is, however, fair to state that these misunderstandings appear excusable if the difficulties are borne in mind with which the English student of Kant is confronted. First, Kant cannot be understood without taking into consideration the historical development of his philosophy, and, secondly, most translations of the fundamental terms, he employs, are so misleading that errors can scarcely be avoided.

Kant's philosophy is by no means a perfected system; it rather represents (as perhaps necessarily all philosophies do) the development of a thinker's mind. The "Critique of Pure Reason" especially shows traces of the state of Kant's mind at different periods, and thus it is that we discover passages which closely considered will be found to be contradictory. When reading this remarkable work we feel like travelers walking over the petrified relics of a powerful eruption. There are strata of ideas of the oldest formation close to the thoughts of a recent date. There are also vestiges of intermediate phases. Here they stand in the petrification of printed words, peacefully side by side,

as memorials of a great revolution in the development of human thought. It is this state of things which more than anything else makes of Kant's writings such difficult reading. At the same time it is obvious that we cannot simply take the results of Kant's philosophy; we must follow him in the paths by which he arrived at any given proposition.

There is no philosopher that has been worse misinterpreted than Kant; and the English interpreters of Kant have succeeded in mutilating his best thoughts so that this hero of progress appears as a stronghold of antiquated views. Mistranslations or misconceptions of his terms are to a great extent the cause of this singular fate. As an instance we mention the errors that attach to Kant's term *Anschauung*. *Anschauung* is the present object of our senses; it is the impression a man has from looking at a thing and might have been translated by "perception" or perhaps "sensation." It is usually translated by "intuition." The *Anschauung* of objects comprises the data of knowledge, and they are previous to our reflection upon them. An intuition in the sense of the English Intuitionalists is defined as "a presentation which can be given previously to all thought," yet this presentation is supposed to be a kind of revelation, a knowledge that comes to us without our contemplation, a cognition the character of which is immediate as well as mysterious; in short something that is supernatural.

How different is Kant's philosophy, for instance, if his position with reference to time and space is mistaken! "Time and Space are our *Anschauung*," Kant says. But his English translators declare: "Kant maintained that space and time are intuitions." What a difference it makes if intuition is interpreted in the

sense applied to it by the English Intuitionalist School instead of its being taken in the original meaning of the word *Anschauung*.

* * *

Any one who knows Kant through Mr. Spencer's representations only, must look upon him as having the most perverse mind that could possibly exist; and yet it is Kant from whom Spencer has indirectly derived the most characteristic feature of his philosophy. What is Mr. Spencer's agnosticism but a popularisation of Kant's view that things in themselves are unknowable?

We conclude from the animosity which Mr. Spencer shows toward Kant that he does not know how much in this respect he agrees with Kant, how much he has unconsciously imbibed from the *Zeitgeist* which in part was formed under the influence of this huge error of the great philosopher.

I feel confident that any clear thinker who studies Kant and arrives along with him at the "thing in itself" will soon free himself from this error of Kantian thought. Kant himself suggests to us the method by which we are to find the way out of agnosticism. As a proof I quote the views of two independent thinkers; both influenced by Kant's criticism but neither a blind follower. Professor Mach says:

"I have always felt it as a special good fortune, that early in my life, at about the age of fifteen, I happened to find in the library of my father Kant's 'Prolegomena to Any Future Metaphysic.' The book made at that time a powerful, ineffaceable impression upon me that I never afterwards experienced to the same degree in any of my philosophical reading. Some two or three years later I suddenly discovered the superfluous rôle that 'the thing in itself' plays." *The Monist*, Vol. I, No. 1, pp. 65 and 66.

And Schiller guided by similar considerations says in one of his Xenions :

" Since Metaphysics, of late, without heirs to her fathers was gathered :
Under the hammer are now ' things in themselves ' to be sold."

The latest attack of Mr. Spencer upon Kantism is in the article "Our Space-Consciousness," in *Mind*, written in reply to Professor Watson. Mr. Spencer there repeats his misconception of Kantism, so that I feel urged to utter a few words of protest against his gross misrepresentation of Kant's views. I shall confine myself mainly to quotations from Kant's works—and the passages quoted will speak for themselves. Should there indeed be any disciples of Kant who are, as Mr. Spencer says, "profoundly averse to that evolutionary view which contemplates mind as having had a genesis conforming to laws like those conformed to by the genesis of the body," these quotations will suffice to prove that they have misconstrued the views of their master. Philosophers hostile to the theory of evolution had better select another patron for their ideas. Kant is too radical a mind to protect those men who in the domains of thought give the signal for retreat.

Mr. Spencer adopted the evolution theory as it was presented by Von Baer, who explains "*Entwickelung*" as a progress from the homogeneous to the heterogeneous.

Baer's "Developmental History of Animals" was published in 1828. Mr. Spencer adopted the theory in 1854. But the history of the theory of evolution is older than Von Baer's book. Professor Baer concludes his work with a few corollaries among which near the end we find the following passage :

"If we survey the contents of the whole Scholia, there follows from them a general result. We found that the effect of generation continues to advance from a part to a whole [Schol. 2.] ; that

in development, self-dependence increases in correspondence with its environment [Schol. 2.], as well as the determinateness of its structure [Schol. 1.]; that in the internal development special parts shape themselves forth from the more general, and their differentiation increases [Schol. 3.]; that the individual, as the possessor of a fixed organic form, changes by degrees from more general forms into more special [Schol. 5.].

"The general result of our inquiry and consideration can now well be declared as follows:

> "That the developmental history of the individual is the history of increasing individuality in every relation; that is, Individualisation.

"This general conclusion is, indeed, so plain, that it needs no proof from observation, but seems evident *a priori*. But we believe that this evidentness is merely the stamp of truth, and therefore is its guarantee. Had the history of development from the outset been perceived as just expressed, it could and should have been inferred, that the individual of a determinate animal type attains to this by changing from a general into a special form. But experience teaches everywhere, that deductions are always safer if their results are discovered beforehand by observation. Mankind would have obtained a still greater intellectual possession than it really has, had this been otherwise.

"But if this general conclusion has truth and contents, it is *one fundamental idea* which runs through all forms and degrees of animal development, and governs every single relation. It is the same idea that collected in space the distributed particles into spheres and united them in solar systems; which caused the disintegrated dust on the surface of our metallic planet to grow up into living forms; but this idea is nothing else than life itself, and the words and syllables in which it expresses itself, are the different forms of life."

These corollaries were not inserted by Baer because he intended to proclaim a new truth, but simply to excite a popular interest in a strictly scientific work, in order to extend the circle of its readers. Baer says in the preface:

"So much about the first part. In order to procure for the work readers and buyers, I have added a second part in which I

make some general remarks under the title of Scholia and Corollaries. They are intended to be sketches of the confession of my scientific faith concerning the development of animals, as it was formed from the observation of the chick and by other investigations."

* * *

The "Encyclopædia Britannica" says of Baer that he "prepared the way for Mr. Spencer's generalisation of the law of organic evolution as the law of all evolution." *

Baer declares that individualisation is "the one fundamental idea that goes through *all* the forms of cosmic and animal development." The generality of the law of evolution is clearer in the language employed by Baer, in the full context of the Scholia than appears from the short statement of the "Encyclopædia Britannica." Nevertheless it is clear enough in the quoted passage that Baer made a statement of universal application. How can such a universal statement be made more general?

We must add here that Mr. Spencer and his disciples overvalue the importance of generalisation. It is not the power of generalisation that makes the philosopher and the scientist but the power of discrimination. The habit of generalising whatever comes under our observation is very common among the uneducated and uncivilised, and almost nine tenths of human errors arise from unwarranted generalisations.

* The passage in the *Encyclopædia Britannica* on Baer runs as follows: "In his *Entwickelungsgeschichte der Thiere*, p. 264, he distinctly tells us that the law of growing individuality is 'the fundamental thought which goes through all forms and degrees of animal development and all single relations. It is the same thought which collected in the cosmic space solar systems; the same which caused the weather-beaten dust on the surface of our metallic planet to spring forth living beings.' Von Baer thus prepared the way for Mr. Spencer's generalisation of the law of organic evolution as the law of all evolution."

In Kant's time the interest in the theory of evolution was confined to a few minds. It is well known that Goethe was one of its most enthusiastic supporters.* In the middle of the eighteenth century there were three views proposed to explain the origin and the development of organised beings: (1) Occasionalism, (2) the theory of Evolution, and (3) the theory of Epigenesis. Occasionalism maintained that God created on each new occasion a new animal. The word evolution was used in a different sense from that in which it is now understood: evolutionism, as maintained by Bonnet, Haller, and others, was the view that the sperma contained a very small specimen of the animal that was to grow from it. The hen's egg was supposed to contain an excessively minute but complete chicken. The theory of epigenesis, however, propounded in 1759 by Caspar Friedrich Wolff in his "Theoria Generationis," explained development by additional growth, and it is this theory of epigenesis which later on, after the total defeat of the old evolutionism, was called (but improperly) the evolution theory. The word "evolution" has thus again admitted the erroneous idea of an unfolding.

In Kant's time the battle between the occasionalists, the evolutionists, and the adherents of the epigenesis theory was hot indeed; and Kant unquestionably gave preference to the epigenesis theory. The most important passage on the subject appears in his "Critique of Judgment." It is as follows:

"If now the teleological principle of the generation of organised beings be accepted, as it would be, we can account for their internally adapted form either by *Occasionalism* or by *Prestabilism.*†

* See Haeckel, *Goethe on Evolution*, No. 131 of *The Open Court*.

† *Præstabilismus*, that is, the theory that the phenomena of nature are the result of pre-established law.

According to the first, the supreme world-cause would, in agreement with its idea, on the occasion of every coition directly give the proper organic form to the material thereby blended; according to the second, it would have implanted into the original products of its designing wisdom merely the power by means of which an organic being produces its like and the species itself is constantly maintained and likewise the death of individuals is continually replaced by their own nature, which is operating at the same time for their destruction.

"If we assume occasionalism for the production of organised beings, nature is thereby wholly discarded, and with it the use of reasoning in determining the possibility of such kinds of products; therefore, it cannot be supposed that this system is accepted by any one who has had to do with philosophy."

"As to *Prestabilism*, it can proceed in a two-fold manner, namely, it considers every organic being produced by its like, either as the *educt* or as the *product* of the first. The system which considers generated beings as mere *educts* is called that of *individual preformation*, or also the *theory of evolution;* that which makes generated beings *products* is named the system of *epigenesis*. The latter can also be called a system of *generic preformation*, because the productive power of those generating was virtually preformed to agree with the internal adapted arrangements that fell to the lot of their race. The opposing theory to this view should be named that of individual preformation, or still better, the *theory of evolution.*"

"The defenders of the theory of evolution, who exempt each individual from the formative power of nature, in order to derive the same directly from the hand of the Creator, would not dare to permit this to happen in accordance with the hypothesis of occasionalism, so that coition would be a mere formality, a supreme national world-cause having decided to form every particular fœtus by direct interference, and to resign to the mother only its development and nourishment. They declared themselves in favor of preformation, *as though it were not the same to make the required forms arise in a supernatural manner at the beginning of the world, as during its progress;* and as if a great multitude of supernatural arrangements would not rather be dispensed with through occasional creation which were necessary in order that the embryo formed at

the beginning of the world should, throughout the long period up to its development, not suffer from the destructive forces of nature, but endure and maintain itself intact; moreover, an immensely greater number of such preformed beings would be made than ever would be developed, and with them as many creations be thus rendered unnecessary and purposeless. They still, however, resign at least something to nature, in order not to fall in with complete hyperphysics, which can dispense with explanation from nature. They still held fast indeed, to their hyperphysics; even finding in monsters (which it must be impossible to regard as designs of nature) cases of adaptation which call for admiration, although the only purpose of that adaptedness might be to make an anatomist take offence at it as a purposeless adaptedness, and have a sense of melancholy admiration. Yet they could not well fit the generation of hybrids into the system of preformation, but were obliged still further to endow the sperm of male creatures with a designedly acting power, whereas they had otherwise accorded it nothing except mechanical force to serve as the first means of nourishment of the embryo; yet this designedly acting force, in the case of the products of generation between two creatures of the same kind, they would grant to neither of them.

"If on the contrary the great advantage was not at once recognised which the theory of epigenesis possessed over the former in view of the experimental foundation on which the proof of it rested; yet reason would be especially favorably predisposed from the outset for this mode of explanation, inasmuch as it regards nature—with reference to the things which originally can be conceived as possible only in accordance with the theory of causality and design, at least so far as propagation is concerned—as self-producing and not merely as developing, and thus with the least possible employment of the supernatural, leaves all that comes afterwards, from the very beginning on, to nature: without concerning itself with the original beginning, with regard to the explanation of which physics in general miscarries, try with what chain of causes it may."

Kant recognises neither the stability of species nor any fixed limits between them. And this one maxim alone suffices to prove that he was of the same opinion as the great biologist who wrote the "Origin of Species." Kant says (Ed. Hart. III. p. 444):

"*Non datur vacuum formarum*, that is, there are not different original and primitive species, which were, so to say, isolated and separated by an empty space from one another, but all the manifold species are only divisions of a single, chief, and general species; and from this principle results again this immediate inference: *datur continuum formarum*, that is, all differences of species border on each other, and allow no transition to one another by a leap, but only through very small degrees of difference, by which we can arrive at one from another; in one word, there are no species or sub-species which, according to reason, would be *next* each other in affinity, but intermediate species are always possible, whose difference from the first and second is less than their difference from one another."

In Kant's "Critique of Judgment" (§. 80) we find the following passage:

"The agreement of so many species of animals, with reference to a definite, common scheme, which appears not only to be at the foundation of their bony structure, but also of the arrangement of their other parts, in which, by abridgment of one and prolongation of another, by envelopment of this and unfolding of that, a wonderful simplicity of plan has been able to produce so great a diversity of species—this agreement casts a ray of hope, although a weak one, in the mind, that here, indeed, something might be accomplished with the principle of the mechanism of nature, without which in general there can be no physical science.

"This analogy of forms, so far as they appear, notwithstanding all their diversity, to be produced after the model of a common prototype, strengthens the conjecture of a real relationship between the same by generation from a common ancestral source, through the gradual approach of one animal species to another, from man, in whom the principle of design appears to be best proved, to the polyp, from this to the moss and lichen, and finally to the lowest stage of nature perceptible to us, to crude matter, from which and its forces, according to mechanical laws (like those which work in the production of crystals), the whole technic of na-

ture (which is so incomprehensible to us in organised beings that we imagine another principle is necessitated for their explanation) appears to be derived.*

"The Archæologist of nature is now free to make that great family of beings (for such we must conceive it, if the uninterrupted relationship is to have a foundation) arise out of the extant vestiges of the oldest revolutions, following every mechanism known to him or which he can suppose."

Kant adds in a foot-note:

"An hypothesis of such a kind can be named a daring venture of reason, and there may be few of the most sagacious naturalists, through whose minds it has not sometimes passed. For it is not absurd, as the *generatio equivoca*, by which is understood the production of an organised being through the mechanical action of crude unorganised matter. But it would still be *generatio univoca* in the common understanding of the word, in so far only as something organic was produced out of another organic body, although specifically distinguished from it; for instance, if certain aquatic animals by and by formed into amphibia, and from these after some generations into land animals. *A priori* this does not contradict the judgment of pure reason. Only experience shows no example thereof; according to it, rather, all generation which we know is *generatio homonyma* (not mere *univoca* in opposition to production out of unorganised material), that is, the bringing forth of a product homogeneous in organisation, with the generator; and *generatio heteronyma*, so far as our actual experience of nature goes is nowhere met with."

* The proposition that Kant is no easy reading found an unexpected and strong opposition. Immediately after the publication of this article, Sept. 4th, 1890, Mr. Charles S. Peirce made the following incidental remark in a letter to the author dated Sept. 6th, 1890: "I have heard too much of Kant's being hard reading. I think he is one of the easiest of philosophers; for he generally knows what he wants to say, which is more than half the battle, and he says it in terms which are very clear. Of course, it is quite absurd to try to read Kant without preliminary studies of Leibnizian and English philosophers, as well as of the terminology of which Kant's is a modification or transmogrification. But there is a way of making out what he meant, while such writers as Hume and J. S. Mill, the more you study them the more they puzzle you."

The treatise "Presumable Origin of Humanity," Kant sums up in the following sentence:

"From this representation of the earliest human history it results, that the departure of man from what, as the first abode of his kind, his judgment represented as Paradise, was no other than the transition of mere animal creatures out of barbarism into man, out of the leading-strings of instinct into the guidance of reason, in a word, out of the guardianship of nature into the state of freedom."

In his work "Upon the Different Races of Mankind," Kant discusses the origin of the species of man in a way which would do honor to a follower of Darwin. It is written in a spirit which recognises the difference of conditions as the causes that produce different species. We select a few passages from this work.

In a foot-note we read:

"Ordinarily we accept the terms natural science (*Naturbeschreibung*) and natural history in one and the same sense. But it is evident that the knowledge of natural phenomena, as they *now are*, always leaves to be desired the knowledge of that which they *have been* before now, and through what succession of modifications they have passed in order to have arrived, in every respect, at their present state. *Natural History*, which at present we almost entirely lack, would teach us the changes that have effected the form of the earth, likewise, the changes in the creatures of the earth (plants and animals) that they have suffered by natural transformations and, arising therefrom, the departures from the prototype of the original species that they have experienced. It would probably trace a great number of apparently different varieties back to a species of one and the same kind, and would convert the present so intricate school-system of Natural Science into a natural system in conformity with reason."

We adduce another passage, no less remarkable in clearness, which proves that Kant has a very definite idea, not only of the gradual evolution of man, but also of the survival of the fittest:

"The cry which a child scarcely born utters, has not the tone of misery, but of irritation, and violent rage; not the result of pain, but of vexation about something; probably for the reason that it wishes to move itself and feels its incapacity, like a captive when freedom is taken from him. What purpose can nature have in providing that a child shall come with a loud cry into the world, which for it and the mother is, in the *rude natural state*, full of danger? Since a wolf, a pig even, would in the absence of the mother, or through her feebleness owing to her delivery, be thus attracted to devour it. But no animal except man as he now is announces with noise its new-born existence; which in the wisdom of nature appears to be arranged *in order that the species shall be preserved*. We must also assume that in what was an early epoch of nature for this class of animals (namely in the period of barbarism) this outcry of the child at its birth did not exist; consequently only later on a second epoch appeared, after both parents had arrived at that degree of civilisation which was required for home-life; yet without knowing how and by what interweaving causes nature arranges such a development. This remark leads us far; for example, to the thought whether after the same epoch, still a third did not follow accompanied by great natural revolutions, during which an orang-outang or a chimpanzee perfected the organs which serve for walking, for feeling objects, and for speech, and thus evolved the limb-structure of man; in which animals was contained an organ for the exercise of the function of reason, which by social cultivation was gradually perfected and developed."

Kant's view concerning the origin of the biped man from quadruped animal ancestors is most unequivocally stated.

In a review of Dr. Moscati's Lecture upon the difference of structure in animals and in men, Kant says:

"Dr. Moscati proves that the upright walk of man is constrained and unnatural; that he is indeed so constructed that he may be able to maintain and move in this position, but that, although by needful and constant habit he formed himself thus, inconvenience and disease arise therefrom, which sufficiently prove, that he was misled by reason and imitation to deviate from the first animal arrangement. Man is not constructed internally different from other

animals that go on all fours. When now he raises himself his intestines, particularly the embryo of pregnant individuals, come into a pendulous situation and a half reversed condition, which, if it often alternates with the lying position or that on all-fours, cannot precisely produce specially evil consequences, but, by constant continuance, causes deformities and numerous diseases. Thus, for example, the heart, because it is compelled to hang free, elongates the blood vessels to which it is attached, assumes an oblique position since it is supported by the diaphragm and slides with its end against the left side—a position wherein man, especially at full growth, differs from all other animals, and thereby receives an inevitable inclination to aneurism, palpitation, asthma, chest-dropsy, etc., etc. With the upright position of man the mesentery, pulled down by the weight of the intestines, sinks perpendicularly thereunder, is elongated and weakened, and prepared for numerous ruptures. In the mesenteric vein which has no valves, the blood moves slowly and with greater difficulty (it having to ascend against the course of gravity) than would happen with the horizontal position of the trunk. . . ."

"We could add considerably to the reasons just adduced to show that our animal nature is really quadrupedal. Among all four-footed animals there is not a single one that could not swim if it accidentally fell into the water. Man alone drowns, except in cases where he has learned to swim. The reason is because he has laid aside the habit of going on all-fours; for it is by this motion that he would keep himself up in the water without the exercise of any art, and by which all four-footed creatures, who otherwise shun the water, swim. . . ."

"It will be seen, accordingly, that the first care of nature was that man should be preserved as animal for *himself and his species*, and for that end the position best adapted to his internal structure, to the lay of the fœtus, and to his preservation in danger, was the quadrupedal position; we see, moreover, that a germ of reason is placed in him, whereby, after the development of the same, he is destined for *social intercourse*, and by the aid of which he assumes the position which is in every case the most fitted for this, namely, the bipedal position,—thus gaining upon the one hand infinite advantages over animals, but also being obliged to put up with many inconveniences that result from his holding his head so proudly above his old companions."

[* In the double-leaded quotation on pages 43 and 44 Kant speaks about the explanation of organised life from man down to the polyp "according to mechanical laws like those which work in the production of crystals," and he adds, in organised beings the whole technic of nature is so incomprehensible to us "that we imagine another principle is necessitated for their explanation."

This "other principle" would be the principle of design, or the teleological explanation of phenomena. In his old age Kant inclined more to teleology than in his younger years, and it is for this reason that Professor Ernst Haeckel accuses Kant of inconsistency.

After having pointed out that "Kant is one of the few philosophers that combine a well-founded knowledge of the natural sciences with extraordinary precision and depth of speculation" and further that "he was the first who taught 'the principle of the struggle for existence' and 'the theory of selection.'" Haeckel says in his "Natürliche Schöpfungsgeschichte," 8th edition, p. 91 :

"Wir würden daher unbedingt in der Geschichte der Entwickelungslehre unserem gewaltigen Königsberger Philosophen den ersten Platz einräumen müssen, wenn nicht leider diese bewundernswürdigen monistischen Ideen des jungen Kant später durch den überwältigenden Einfluss der dualistisch christlichen Weltanschauung ganz zurückgedrängt worden wären."

This "influence of the dualistic Christian world-conception" is according to Haeckel, Kant's recognition of a teleological causation in the realm of organised life. Haeckel says on the same place :

"Er behauptet, dass sich im Gebiete der anorganischen Natur unbedingt sämmtliche Erscheinungen aus mechanischen Ursachen,

* This passage on pages 48, 49, and 50 which is enclosed in brackets did not appear in *The Open Court*. It has been added since and is published here for the first time.

aus bewegenden Kräften der Materie selbst, erklären lassen, im Gebiete der anorganischen Natur dagegen nicht."

Haeckel does not stand alone in denouncing the old Kant. Schopenhauer distinguishes between the author of the first and the author of the second edition of the "Critique of Pure Reason," regarding the former only as the real Kant. These accusations are not without foundation, but we believe with Max Müller that they have been unduly exaggerated.

As to teleology for which Kant's preference appears to be more strongly marked in his later than in his younger years we should say that it is a problem that should, in an historical investigation, as to whether or not Kant was a consistent evolutionist, be treated independently. No one can deny that there is an adaptation to ends in the domain of organised life. It is not so much required to deny teleology in the domain of organised nature as to purify and critically sift our views of teleology. There is a kind of teleology which does not stand in contradiction to the causation of efficient causes so called.

Mr. Spencer's denunciations of Kant would have some foundation, if he had reference to the old Kant alone. But everyone who censures Kant for the errors of his later period is bound to qualify his statement, and indeed whenever such strictures of Kantism appear I find them expressly stated as having reference to "the old Kant."

That Kant who is a living power even to-day is the young Kant, it is the author of the first edition of the "Critique of Pure Reason." He is generally called "the young Kant," although he was not young; he was, as we say, in his best years. The old Kant who proclaimed that he "must abolish knowledge in order

to make room for faith" is a dead weight in our colleges and universities. The young Kant is positive, the old Kant is agnostic. The young Kant was an investigator and naturalist of the first degree; he gave an impetus to investigation that it had never before received from philosophy. The old Kant, I should not exactly say reverted but certainly, neglected the principles of his younger years and thus became the leader of a reactionary movement from which sprang two offshoots very unlike each other but children of the same father; the Oxford transcendentalism as represented by Green and the English agnosticism as represented by Mr. Spencer.

It is strange that Mr. Spencer has so little knowledge concerning the evolution of the views he holds. If he were more familiar with the history of the idea "that the world-problem is insolvable, he would show more reverence toward the old Kant and his mystical inclinations; for Kant, whatever Mr. Spencer may say against it, is the father of modern agnosticism.*]

* * *

The history of Mr. Spencer's philosophical development shows that the first idea which took possession of his mind and formed the centre of crystalisation for all his later views was M. Condorcet's optimism. Condorcet believed in progress; he was convinced that in spite of all the tribulations and anxie-

* In this connection we call attention to a book, *Kant und Darwin, ein Beitrag zur Geschichte der Entwickelungslehre*, Jena, 1875, by Fritz Schultze, formerly Privat docent in Jena, now Professor of philosophy at the Polytechnic Institute in Dresden. This little book is a collection of the most important passages of Kant's views concerning evolution, the struggle for existence, and the theory of selection, and it is astonishing to find how much Kant had to say on the subject and how strongly he agrees with and anticipates Darwin. If Kant had not lived before Darwin one might be tempted to conclude that he was familiar with his *Origin of Species* and *The Descent of Man*.

ties of the present, man would at last arrive at a state of perfection. He saw a millennium in his prophetic mind, which alas !—if the law of evolution be true—can never be realised. Condorcet died a martyr to his ideals. He poisoned himself in 1799 to escape death by the Guillotine.

The influence of Condorcet's work *Esquisse d'un tableau historique des progrès de l'esprit humain* is traceable not only in Mr. Spencer's first book, "Social Statics," published in 1850, but in all his later writings. How can a true evolutionist believe in the Utopia of a state of perfect adaptation? Does not each progress demand new adaptations? Take as an instance the change from walking on four feet to an upright gait. Did not this progress itself involve man in new difficulties, to which he had to adapt himself? Let a labor-saving machine be invented, how many laborers lose their work and how many others are in demand! The transition from one state to the other is not easy, and as soon as it is perfected new wants have arisen which inexorably drive humanity onward on the infinite path of progress which can never be limited by any state of perfection. There is a constant readjustment necessary, and if we really could reach a state of perfect adaptation human life would drop into the unconsciousness of mere reflex motions.

Any one who understands the principle of evolution and its universal applicability, will recognise that there can be no standstill in the world, no state of perfect adaptation. Our solar system has evolved, as Kant explained in his "General Cosmogony and Theory of the Heavens," out of a nebula, and is going to dissolve again into a nebular state. So our social development consists in a constant realisation of ideals.

We may think that if we but attain our next and dearest ideal, humanity will be satisfied forever. But as soon as we have realised that ideal, we quickly get accustomed to its benefits. It becomes a matter of course and another ideal higher still than that just realised appears before our mental gaze.

Herder, in his "Ideas for a Philosophy of the History of Mankind," not unlike Mr. Spencer, was also under the spell of the Utopian ideal, that humanity will reach at last a state of perfect happiness. Kant, in his review of Herder's book, discusses the relativity of happiness and its insufficiency as a final aim of life. He says:

"First of all the happiness of an animal, then that of a child and of a youth, and lastly that of man! In all epochs of human history, as well as among all classes and conditions of the same epoch, that happiness has obtained which was in exact conformity with the individual's ideas and the degree of his habituation to the conditions amid which he was born and raised. Indeed, it is not even possible to form a comparison of the degree of happiness nor to give precedence to one class of men or to one generation over another. . . . If this shadow-picture of happiness . . . . were the actual aim of Providence, every man would have the measure of his own happiness within him. . . . Does the author (Herder) think perhaps that, if the happy inhabitants of Otaheiti had never been visited by more civilised peoples and were ordained to live in peaceful indolence for thousands of years to come—that we could give a satisfactory answer to the question why they should exist at all, and whether it would not have been just as well that this island should be occupied by happy sheep and cattle as that it should be inhabited by men who are happy only through pure enjoyment?"

"It involves no contradiction to say that no individual member of all the offspring of the human race, but that only the species, fully attains its mission (Bestimmung). The mathematician may explain the matter in his way. The philosopher would say: the mission of the human race as a whole is *unceasing progress*, and the perfection (Vollendung) of this mission is a mere idea (al-

though in every aspect a very useful one) of the aim towards which, in conformity with the design of providence, we are to direct our endeavors."

It is indubitable that Kant's views of evolution agree better with the present state of scientific investigation, than does Mr. Spencer's philosophy, which has never been freed from Condorcet's ingenuous optimism. The assumption of a final state of perfection by absolute adaptation is irreconcilable with the idea of unceasing progress, which must be true, if evolution is a universal law of nature.

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